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Comment on the Revised Environmental Assessment for the BSL-3 Facility at Lawrence Livermore National Lab

The Sunshine Project is a non-profit non-governmental organization that works to prevent the development and use of biological weapons, avert the use of biotechnology for hostile purposes, and to uphold and strengthen international agreements prohibiting biological warfare.

We advocate for a strengthened and verifiable Biological and Toxin Weapons Convention (BTWC) and monitor research on biological weapons agents and delivery technologies for the purpose of identifying strengthening compliance by the United States and other countries with their commitments as contracting parties to the BTWC.

The Revised Environmental Assessment (EA) for Livermore Lab's BSL-3 is fundamentally flawed and should be redrafted in the form of a more comprehensive EIS. Moreover, the public must be given an opportunity to ask questions or learn more about this plan at a public hearing hosted by the Department of Energy in connection with its NEPA document. Please provide at least 30 more days for public comment and a public meeting at a time early in the process.

New Labs Pose Unexamined Risks

The terrorist and anthrax attacks of 2001 prompted Congress to allocate billions of dollars for construction of new or upgraded biological defense research facilities by agencies including the Department of Health and Human Services, the Department of Defense, the Department of Agriculture, the Department of Homeland Security, and the Department of Energy. These agencies are now in the process of constructing and determining where to site new and expanded research facilities.

The proposed upgrades and new facilities for biodefense research will facilitate access to biological weapons agents and knowledge of their use for a greatly increased number of individuals. Examples of these skills include growing and purifying highly infectious agents in

containment, agent aerosolization (in, for example, challenge tests), and genetic alteration of weapons agents.

A complete list of the number of BSL-3 facilities currently operating in the nation has not been made available by the Federal government. However, it is estimated that there are more than 500 BSL-3 facilities.

There is no need for the facility

The DOE has developed potentially useful biological weapons agent detection equipment and decontamination equipment. However, this work has little need for its own BSL-3 facilities. Many of the agents considered to be a bioterrorism threat can effectively be simulated by benign organisms or simulant organisms that pose much lower levels of risk to people, animals, and the environment. A multitude of facilities for testing detection and decontamination equipment already exist that may be used when justifiable need to do so arises. Using existing facilities is an option should be evaluated.

A BSL-3 biodefense laboratory should not be located near the EMBF

The proposed Lawrence Livermore National Laboratory (LLNL) facility is alarmingly close to the Environmental Microbial Biotechnology Facility (EMBF), a very large facility designed specifically for the purpose of “producing very large quantities of microorganisms, including genetically-engineered microorganisms. The EMBF has a fermentation (bioreactor) capacity in excess of 1,600 liters. The EMBF also contains equipment used for the preparation of micro-organisms for release into the environment, in support of the EMBF’s mission, as stated on its LLNL web site. The EMBF has already produced biodegrading organisms, a class of organism with offensive bioweapons applications. Furthermore, the director of the EMBF must have a high security clearance.

The co-location of the proposed BSL-3 and the EMBF at LLNL would create what intelligence analysts term a signature (or “footprint”) of an offensive biological weapons program capable of the production of weaponized pathogens in quantities sufficient for at least theater scale use. A facility with such a signature, located in most other countries of the world, could provoke diplomatic or even military crisis. Discovery of such a facility today, in Iran, could be construed to be proof of Iranian violation of the Biological and Toxin Weapons Convention. Evaluate the feasibility of physically and programmatically segregating this facility from the BSL-3 facility.

Quantities of Pathogens are too large to be Prophylactic

The LLNL EA indicates that laboratory cultures of biological weapons agents may be as large as 1 liter, with a facility limit of 100 liters. *It is extremely difficult to envisage a legitimate prophylactic use for this quantity of pathogen.* For example, the *Rickettsia Coxiella burnetti*, causative agent of Q fever, is among the agents LLNL intends to study at its proposed BSL-3 facility. The human inhalation infectious dose (HID) for *C. burnetti* is considered to be 10

organisms. If LLNL produced cultures of *C. burnetti* in one liter quantities, with an assumed saturated solution of 10^8 organisms per milliliter, the 1 liter culture of *C. burnetti* will have enough organisms to cause 10 billion human infections. Production of gram or sub-gram quantities of any pathogen is sufficient for defensive bioweapons work. The 100 liter limit was only discovered through a Freedom of Information Act request. Please state the limit in the final document and offer a justification for why so many liters are needed.

Research Activities are Questionable: More Info Must be Disclosed

The LLNL Environmental Assessment (EA) indicates that aerosol challenge tests on rodents are planned for the facility. In order for this type of testing to yield useful information for a biological defense program, the challenge agent must be prepared in a manner to simulate warfare conditions and technologies used by potential enemies. In other words, there is a strong inference that the challenge tests will require agent weaponization. Preparing such agents may require specialized equipment. This equipment is not mentioned in the EA. The weaponization of agents poses greater than normal health risks to laboratory workers and the surrounding community because it is designed to render them more infectious and pervasive in an open environment. Please explain whether the agents will be weaponized and generally how the agents will be prepared, manipulated or modified for this testing.

The EA mentions a number of organisms likely to be cultured in the near term. Of these, *Coccidioides immitis* (causative agent of valley fever) and *Brucella spp.* (causative agent of brucellosis) are regarded as incapacitating, rather than lethal, biological weapons and are unusual choices for defensive biological weapons work, particularly at a DOE facility. Both pathogens are treatable and rarely fatal. *Brucella* is only known to have been weaponized by the U.S. and the former Soviet Union. It is thought that *Brucella* was the first agent weaponized by the U.S., which has a long history and extensive knowledge of the agent and the disease that it causes.

Incapacitating agents, particularly those with long incubation periods like *Brucella*, are extremely unlikely to be used against the U.S. A terrorist – or state – posing a biological threat will choose lethal agents over incapacitating ones. Militarily, incapacitating biological agents are far better suited for use to “soften” (weaken) a civilian population or an opponent’s military prior to invasion with a large force. Using such a weapons against the United States simply is not practical, nor, since the disease produces only a low level of fatalities and is readily treatable, does it serve the purposes of terrorists.

This Facility is Redundant and Has No Legitimate Purpose

The proposed BSL-3 facilities at LLNL and LANL are particularly redundant and unnecessary. The EAs for both facilities fail to make a compelling case for the Department of Energy’s (DOE) need for these facilities. Specifically, the LLNL EA claims “An on-site BSL-3 facility would provide safe and secure manipulation and storage of infectious agents at a time when these issues are imperative to national security.” It is accurate to state that biodefense has risen in national

priorities, considering the attacks of 2001, and particularly that they are likely to have been perpetrated or assisted by a current or former US biodefense worker. The EA's justification, however, nonsensically mixes "issues" with "facility." The heightened national interest in biodefense, in itself, is not a justification for facility at LLNL, particularly considering the large number of facilities being constructed elsewhere under programs such as NIAID's. Please describe why this facility is needed above and beyond others and why other existing and planned labs would not be sufficient.

The U.S. biodefense program dwarfs, in size and scope, all other biodefense programs in the world. The U.S. biodefense program poses a real threat to U.S. national security. The emergence of biodefense as a national policy priority signals the need for reconsideration of the wisdom of many U.S. biodefense activities, rather than mindless proliferation of laboratories handling extremely dangerous biological pathogens. With other bioresearch facilities proposed for DOE, a large NIAID and Department of Homeland Security biolaboratory construction program underway, renewed U.S. Department of Agriculture biodefense research, new labs under construction for the Centers for Disease Control and the Environmental Protection Agency, and an expansion of the Department of Defense's efforts, the LLNL and LANL proposals must be carefully weighed not only in terms of the specific risks of the facility, but also in the context of the facilities already available, or soon to become available.

Transparency Must be a Priority

Increasing the transparency of biological research, particularly research involving potential biological weapons agents, is paramount to maintaining international confidence in the objectives and intent of the US biodefense program and averting a biotechnological research race with biological weapons agents. Transparency is also sound public policy that enables citizens to have knowledge of and meaningfully participate in the elaboration of goals and the conduct of research that poses environmental, health, and security risks.

Laws including the Bioterrorism Act of 2002 have generated extreme confusion among research institutions and resulted in the imposition of unacceptable deterioration of transparency and restrictions on public access to information whose release should not be significantly encumbered by federal law, such as records of institutional biosafety committees. Across the United States, the legitimate need to protect a relatively small amount of site-specific information concerning the immediate physical security of select agents is being used to justify an unwarranted and dangerous collapse in the public accountability of research. Common sense and the lab's relationship with other states and local communities dictate that the lab operates on the basis of openness, transparency and maximum disclosure. Institutional Biosafety Committee (IBC) meetings should be open to the public and held in a part of the lab where no security badge is needed. Additionally, safety planning and oversight documents should be made available on the internet.

Accident Reporting

Despite the modest provisions of the Bioterrorism Act and some other rules that require reporting of some adverse laboratory events, the absence of mandatory, comprehensive federal reporting

requirements for all significant accidents and security events remains a national scandal. Concern is heightened by the fact the amount of work with particularly dangerous biological weapons agents is rapidly growing.

The fact that neither the public nor the government has an adequate, much less a comprehensive, account of the incidents that presently occur is not only disturbing for its security implications; but provokes questions about the adequacy of the knowledge base used to develop Biosafety and Biosecurity rules. To make matters worse, there are significant unaddressed disincentives to reporting of accidents because labs may be fearful of losing funding or attracting undesired attention. This situation presents palpable, inadequately-addressed Biosecurity dangers.

We urge a commitment by Livermore Lab to pledge to report all accidents that generally pose health and environmental risks should be disclosed within 2 hours of the time when the agency knew or should have known. Further, regardless of whether it is determined that a health or environmental risk exists, accidents should also be publicly disclosed within 48 hours where any workers are made ill due to infection. Anything less could jeopardize public health and safety.

Sincerely,

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Sent: Thursday, May 03, 2007 10:09 PM

To: Brinker, Samuel

Subject: opposition to bio-warfare at Livermore Lab

Regardless of the so-called 'convenience' of using the Livermore Lab for bio-warefare research, the following two points need to be taken into consideration. When these facts are examined you will see that this is not the place for such activity. Please note:

Livermore Lab sits within a 50-mile radius of seven million people. This highly populated area is not an appropriate place to conduct experiments with some of the deadliest agents known.

· Livermore Lab is located near active earthquake fault lines. The BSL-3 is a portable building that was brought to Livermore Lab on a truck. This BSL-3 should not be operated in a seismically active area.

The revised Environmental Assessment states that new research by the USGS has determined there is a 62% chance that one or more magnitude 6.7 earthquakes will occur in the area within the next 30 years.

Other studies predict a quake with MM 10 shaking in the Livermore area (which is very violent – the scale is 1 to 10). The revised EA briefly mentions these key facts, but does not fully account for them in conducting its hazard analysis.

Thank you

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Comment on the Draft Revised Environmental Assessment for the Biosafety Level Three Facility at the Department of Energy's Lawrence Livermore National Laboratory (DOE/EA-1442R)

Submitted by Tri-Valley CAREs

Tri-Valley CAREs is a non-profit organization founded in 1983 by Livermore area residents to research and conduct public education and advocacy regarding the potential environmental, health and proliferation impacts of the Department of Energy's (DOE) Lawrence Livermore National Laboratory (LLNL).

On behalf of our 5,600 members, Tri-Valley CAREs submits the following public comment concerning the Draft Revised Environmental Assessment (EA) for the proposed Biosafety Level 3 (BSL-3) facility at LLNL.

Since 2002, when both of the nation's classified nuclear weapons design laboratories, Livermore Lab in California and Los Alamos Lab in New Mexico, announced plans to operate advanced biowarfare agent research facilities, Tri-Valley CAREs has closely monitored these proposals. In 2003, Tri-Valley CAREs and Nuclear Watch of New Mexico initiated litigation pursuant to the National Environmental Policy Act (NEPA) to compel comprehensive environmental review at both locations.

Since that time, the DOE has agreed to conduct a full Environmental Impact Statement (EIS) and public hearings before moving forward with a BSL-3 at Los Alamos Lab. Regarding the proposed BSL-3 at Livermore Lab, the 9th Circuit Court of Appeals remanded the Environmental Assessment and its finding of No Significant Impact (FONSI) back to the Department as insufficient -- in large part "to consider whether the threat of terrorist activity necessitates the preparation of an Environmental Impact Statement." As we will note in greater detail below, we believe that NEPA does require a full EIS and public hearings before the Livermore Lab BSL-3 can proceed.

An adequate and comprehensive NEPA review is critical to protect the health and environment of Northern California, where LLNL is located. The immediate 50-mile radius around LLNL includes the metropolitan San Francisco Bay Area to the west and our State's ranching and agricultural heartland, the Central Valley, to its east. More than 7 million people live within this directly affected area.

NEPA requires federal agencies to take a hard look at the potential environmental impacts of projects that may have a significant impact on the environment. The planned BSL-3 facility at LLNL will handle large quantities of some of the deadliest biological agents on earth. If a release occurs, thousands of area residents could be made ill or die from the release -- and mass hysteria could follow.

There is new information since the DOE originally released its EA for the BSL-3 at LLNL in 2002. Some of the new information is incorporated into the Revised EA (albeit followed by insufficient analysis to be meaningful), while other, key information is missing altogether.

Our comments outline some of the environmental impacts posed by this proposed action, including unanalyzed and poorly analyzed security risks. Moreover, our comments propose reasonable alternatives and mitigation measures that, if fully analyzed by DOE and subsequently implemented, would better protect public health and the environment than the currently planned action.

We will also raise questions to prod proper NEPA analysis in order to protect communities downwind and downstream of LLNL, avoid wasting resources (natural and financial) and strengthen the Biological Weapons Convention to prevent the spread of bio-weapons. We submit these comments to encourage more careful consideration of the policy implications of collocating advanced bio-warfare agent research and nuclear weapons research along with the myriad of serious, direct health and environmental hazards posed by operation of this BSL-3 at LLNL.

Need for Extension of Comment Period and Public Hearing

Most area residents were never made aware of the comment period. It has not been widely or adequately publicized by the Department of Energy or by Livermore Lab. Therefore, people are being deprived of their right to comment. The deadline should be extended for at least 30 additional days. And, a public hearing should occur within the extended public comment deadline so that the community will have an opportunity to learn about this important project firsthand.

Moreover the Revised EA itself does not tell people where or when to send comments. Even if people were told where to send comments, the fax machine did not accept comments on May 11, 2007, the comment deadline. This unfortunate situation raises the question of whether the DOE even wants the public to comment, as is contemplated in the NEPA statute.

As you are aware, the purpose of NEPA is to ensure that governmental decision-making is conducted on the basis of sufficient and sound information and in a manner that ensures public participation in this process by incorporating the unique local perspectives of the affected community and enabling community members to learn about the project through public hearings and public documents.

Tri-Valley CAREs has submitted extensive comments on many National Environmental Policy Act documents over its 23 years and has facilitated thoughtful dialogue and informed debate on important environmental issues through administrative processes. It is clear to us that in order to successfully gather thoughtful public input, DOE will need to extend the public comment period and hold a public hearing.

Purpose and Need / Alternatives Analysis is Inadequate And Must be Augmented

Advanced biodefense research (i.e., involving bio-warfare agents and including such activities as genetic modification of bio-warfare agents and aerosolizing them) should not be collocated with nuclear weapons research. Further, locating a BSL-3 facility at LLNL is duplicative of other facilities that are and can continue to be available for use by LLNL researchers, including BSL-3 facilities run by public health agencies that do not pose collocation problems.

In the United States, BSL-3 level biodefense facilities are proliferating at an alarming rate with multiple agencies proposing new projects each year and no overarching national assessment of the capabilities we have, how to best utilize them and what, if any, additional capabilities are needed (and for what purpose). Tens of billions have been allocated for biodefense in the past few years with little oversight or accountability.

In this context, and pursuant to the requirements of NEPA, we urgently insist that DOE conduct an in-depth analysis the purpose and need for the LLNL BSL-3 within the context of federal spending on biodefense laboratories.

Please analyze and describe how LLNL researchers could conduct experiments at existing BSL-3 facilities. In our 2002 comments we requested that DOE analyze how it could better utilize existing BSL-3 facilities run by the Centers for Disease Control and Prevention (CDC) as that agency has a civilian science mission and a history of operating BSL-3s. The DOE response was, essentially, that using other agency labs would be inconvenient.

Since then, the CDC has expanded its BSL-3 facility at Fort Collins, Colorado -- which is often used by LLNL researchers when they require a BSL-3. It has also come to light that LLNL researchers use the BSL-3 facility at the Dugway Proving Ground in Utah, and that facility has also seen extensive expansion since the original 2002 EA. We note that both Colorado and Utah are easily accessible by plane.

The DOE must fully and honestly analyze the option of continuing to utilize other agencies' BSL-3 facilities instead of operating one on-site at LLNL. The DOE's "purpose and need" statement, which is merely repeated on page 8 in the Revised EA, is out of date and insufficient.

You state in the Revised EA that the Department of Energy has no laboratories to handle experiments with BSL-3 or BSL-4 agents. Tri-Valley CAREs questions the need for a facility that is a higher level than BSL-2 for doing a significant percentage of the biodetector validation work underway at LLNL. It is our understanding that surrogate agents can obviate the need for actual testing in many instances, and, as noted above, the then less-frequent need for additional validation could occur at existing facilities offsite.

This combination approach (surrogate agents where possible and other agency facilities when surrogates cannot be used) must also be fully examined by DOE.

Further it is disingenuous for the DOE to only discuss what biolabs exist within its own complex and fail to mention the fact that the Department of Homeland Security (DHS) has biolabs. Page 4 of the Revised EA asserts that "some of DOE's missions relating to biological security have been transferred to the [DHS]." Some, if not most, of the work slated for the BSL-3 will be done in a "work for others" arrangement for DHS, according to the Revised EA. Thus, the BSL-3s that exist within DHS should be considered as alternatives for

the BSL-3 proposed for LLNL. This option, too, must be fully examined by DOE, including in conjunction with one or both of the other options described above.

Further, there is a question as to what agencies should be completing this NEPA review, DOE alone (the current situation) or DHS or one or more federal agencies. Please spell out the extent that DHS work will be completed in this lab and provide the rationale for why DOE, rather than DHS, is completing this analysis. Please include information about the planned percentages of work (i.e. research in the BSL-3) that will be done by DHS and DOE and the percentages of funding from each agency.

At a minimum, we urge you to bring in these other federal agencies as cooperating agencies so that no duplication of effort, lack of coordination or under-optimized utilization of BSL-3 space occurs with DHS, CDC or the BSL-3 at the Dugway Proving Ground. Please also describe how you will ensure that the work conducted at LLNL will not be duplicative of work at other biodefense laboratories including but not limited to the aforementioned DHS labs, CDC labs and/or DoD facilities like Dugway.

Using existing labs instead of building a new one is an alternative that must be given full, genuine consideration as the NEPA process moves forward.

Inappropriateness of Location

Livermore Lab sits within a 50 mile radius of seven million people. This highly populated area is not an appropriate place to conduct experiments with some of the deadliest agents known, including but not limited to live anthrax, Q fever and plague. Homes and apartment buildings (and little league fields) are built out to the gates of LLNL. Moreover, LLNL itself is a densely crowded 1.3 square mile facility with approximately 10,000 employees. If there were a bioagent release due to any reason, infection and disease could be easily spread among the worker population as workers travel in and out of the very crowded and compact site.

In our detailed comments that follow are numerous, additional examples regarding the inappropriateness of locating this facility at LLNL. They range from the fact that LLNL is a Superfund cleanup site (on EPA's list of worst contaminated locations in the country) to elevated security risks at the LLNL BSL-3 (such as those related to genetic modification of bio-agents and the potential to create disease "superstrains") to problems posed by lack of transparency and collocation of "bugs and bombs."

EIS vs. EA

As noted above, an EIS should be completed on this facility. The BSL-3 facility proposed for Los Alamos National Lab is being studied in a full EIS. DOE, in its Federal Register notice, stated that the preparation of an EIS at Los Alamos Lab was due in part to the need for a more complete seismic analysis than had been done in the EA.

We concur with that DOE decision, and note that in Livermore, the risks of earthquake are much greater than in New Mexico. There are a number of earthquake faults capable of causing damage at the LLNL site. The nearest fault zone, the Las Positas Fault Zone is less than 200 feet from the site boundary (see also "earthquakes" below).

Furthermore, the planned BSL-3 facility at LLNL may be more vulnerable to seismic events because it is not a permanent structure. The LLNL facility is a prefabricated structure that was fabricated by a company that proudly proclaims its ability to put together such a facility in 180 days. The situation warrants a full EIS.

We note too that the LLNL BSL-3 EA was substantially "cut and pasted" from the Los Alamos BSL-3 EA that had been released earlier. Since the DOE has withdrawn its Los Alamos Lab BSL-3 EA and FONSI -- and has opted to complete an EIS process -- shouldn't the DOE stop relying on the SAME analysis the Department decided was not adequate for Los Alamos simply repeated in the LLNL BSL-3 EA. Those sections should be struck and redone.

The Revised EA gives DOE the opportunity to look anew (and with new information) at risks. We are deeply disappointed that DOE has failed to make use of this "second chance" to do it right.

Further, the Revised EA permits the LLNL facility to conduct experiments with any and all BSL-3 agents. This includes scores of potentially deadly pathogens like Q fever, live anthrax, botulism, bubonic plague, tularemia and much, much more. The Revised EA also mentions that the LLNL BSL-3 would be used to genetically modify bio-warfare agents, conduct experiments with prions, and aerosolize pathogens, among other activities not associated with most BSL-3 facilities in the United States.

The Revised EA (and the 2002 EA before it) say that the LLNL BSL-3 would house up to 10 liters of very concentrated bio-agents in solution. Other DOE documents discuss this same BSL-3 as housing up to 100 liters of very concentrated bio-agents in solution, including up to 25,000 discrete samples of potentially deadly pathogens. The DOE must reconcile using different volumes in different documents. One is left to wonder if DOE is providing accurate amounts in the Revised EA. This is no small detail.

The environmental impacts of the facility could be very significant in the event of a release. Even a percentage of 10 liters, released into the environment, could mean thousands of people perishing. Only a minute number of many BSL-3 agents are needed to cause disease and high mortality. Add that to the high population on-site at LLNL and the densely populated residential areas surrounding LLNL. When the impacts could potentially be this great, an EIS is required.

Transportation Security / Terrorism Concerns Must be Addressed

According to the Revised EA, an estimated 60 shipments per month (in and out) will travel by commercial courier. Livermore Lab just had an incident in September, 2005, where it mislabeled and improperly packaged "select agents" (biological organisms that are historically associated with bio-warfare purposes) and shipped them to two offsite laboratories. The incident resulted in a suspension of transfers during a Centers for Disease Control and Prevention investigation. This is mentioned in passing, but not discussed in any depth. Transportation risks should be studied in the context of accidents and intentional diversion.

Security / Terrorism Analysis in the Revised EA is Incomplete and Inadequate

Given the high profile of DOE's nuclear weapons activities at LLNL, its connection to the nation's nuclear weapons (and weapons policy), the on-site storage of large quantities of plutonium, highly enriched uranium and other radioactive materials at LLNL and the proposed collocation of deadly pathogens in a prefabricated BSL-3, Livermore Lab may soon offer "one-stop shopping" for terrorism.

LLNL's crowded site and proximity to 7 million people (unique in the nuclear weapons complex), taken together with its proposed mixture of deadly pathogens and nuclear materials, will soon offer terrorists (and/or a

disgruntled employee) an increasingly tantalizing target and all the resources necessary to wreak havoc upon society.

Because of the threat of terrorism, the DOE has stated that it plans to remove the weapons usable quantities of plutonium and highly enriched uranium out of Livermore Lab by the end of 2014. (Note the potential that nuclear and biological weapon materials may be together at the LLNL main site for up to 7 years.)

Why was the removal of special nuclear materials out of LLNL (and the security reasons prompting that removal) not considered in the Revised EA. We believe it is relevant. *If DOE is planning to remove the weapons usable quantities of special nuclear material because of security concerns, why move in large quantities of biological weapon agents stating that there are no security concerns?*

In some reasonable scenarios, terrorists and/or disgruntled employees may be preferentially attracted to the availability of highly concentrated, deadly bio-agents in a portable building located outside the higher security "Superblock" at LLNL rather than the nuclear materials located inside the Superblock.

Moreover, the Revised Environmental Assessment does not do an adequate job of analyzing the environmental and health impacts of potential acts of terrorism. For example, it too optimistically assumes that most bio-agents would be destroyed in a terrorist attack, and therefore not many would escape into the environment and pose a hazard. This is more in the category of wishful thinking than reasonable analysis.

The Revised EA suggests that if there were a major breach of the facility then a fire would ensue and eliminate most of the potentially deadly bio-agents (page 59).

Further, the Revised EA postulates that even if the fire it expects doesn't occur – disinfectants would break open and kill off the bio-agents. On page 42 of the Revised EA, it states that "at any one time there would be just a few liters each of chemical disinfectants." It seems too tenuous of a nexus to assume that fire or a few liters of disinfectants will eliminate most bioagents released in a terrorist attack.

It defies reason that terrorists would automatically trigger a major fire or disinfectant release on the exact spot where the bio-agents / cloud of bio-agents would be released. Other, unanalyzed scenarios that don't involve a conveniently located fire or disinfectant release are possible -- and must be considered.

Furthermore, even in the event the conveniently located fire and/or disinfectant release did take place, it is nonetheless true that some pathogens to be stored and used in the LLNL BSL-3 are very hardy with respect to temperature and significant quantities of them may not be destroyed in the fire but, instead, may be lofted by hot air and dispersed over the population.

Further, some agents to be stored and used in the BSL-3 are not amenable to destruction by the disinfectant that the EA says will kill them.

The scenario in the Revised EA does not specify the quantity of bio-agent released in the scenario, the type of bio-agent (including its form and characteristics), the fraction that might survive, the possible dispersion of the plume (where, what weather pattern is assumed), the minimum number of spores, cells or microorganisms needed to cause disease in humans, the percentage of people that the EA thinks will get treatment vs. the percentage that won't, the percentage of people treated who will sicken and die any way (e.g., chronic Q fever reportedly kills 65% of the sufferers who did receive proper treatment), and other key data.

Without data, it is unclear what assumptions the Revised EA may be piling up -- one on top of the other.

Further the terrorism analysis fails to study practical things in detail such as whether the LLNL BSL-3 facility is structurally resistant to a terrorist attack, whether decontamination procedures are in place if workers or community members are exposed to released bioagents or whether security workers and local emergency management teams are trained and equipped to respond to this type of emergency. Although the Revised EA does say that LLNL spoke with local hospitals – it isn't clear what that actually means.

Please describe in more detail how prepared the hospitals are – which ones have the equipment and training to handle a mass outbreak of bioweapons agents – and the extent of the training given. The Revised EA also makes the dangerous assumption that the security will function seamlessly and that the workers will be pre-screened and well trained.

Reasonable scenarios should be evaluated wherein a fire or disinfectant do not eliminate most or all bio-agents. Evaluate how a plume of bio-agents would spread and potentially affect populations and the environment surrounding LLNL to the west and the Tri-Valley and San Francisco Bay Area. Evaluate also the impact on the Central Valley (while less heavily populated than the metropolitan Bay Area, the impact on the people and the environment may still be substantial). In addition, we note that the LLNL BSL-3 will genetically modify bio-warfare agents. What might the impacts of the release of a "superstrain" be?

In the context of airborne plume migration, we note that following a release of radioactive tritium from the LLNL main site (Building 331), Livermore Lab researchers found evidence of tritium deposition stemming from that accident as far away at Fresno, California -- hundreds of miles away.

Airplane scenario

The Revised EA implausibly concludes that a plane crash into the facility would *not* result in a release of greater magnitude than other catastrophic events already considered in the EA. Yet, the catastrophic bounding accident scenario in the EA involves loose caps on a centrifuge.

This is not a hard look or even a meaningfully intelligent look at environmental impacts. A centrifuge accident is a common occurrence in a lab setting and does not bound the range of events that could result in a release.

Further, if a plane hit the building there is a likelihood that agents would be released from more than just "in process" containers. An airplane crash into a portable facility could logically also release pathogens that are in storage there. In this regard we again note that DOE documents outside of the Revised EA say that the LLNL BSL-3 would house up to 100 liters of bio-agents, including 25,000 discrete samples of various pathogens.

If the EA is actually trying to conclude that the BSL-3 storage freezers are plane-crash proof, please so state explicitly. We are not aware that bio-agent storage freezers pass such a test. The certification procedure for airplane hits on freezers should be detailed in the final NEPA document.

The Revised EA goes on to compare an airplane crashing into the LLNL BSL-3 to "lambing season at various local ranches...." This is an insulting comparison, does not pass the "laugh test" and fails to meet the standard of review required by NEPA.

This bio-warfare agent research facility represents a very serious risk to the surrounding community, and, in the event of a rupture in the facility or other catastrophic release, it could threaten the community, the entire Bay Area or the Central Valley.

Theft of Bioagents

The revised EA on theft and subsequent release (page 62) – compares theft of dangerous, deadly biowarfare agents concentrated in solution with the very dispersed bioagent present sometimes in the environment (such as Anthrax) and suggests that terrorists would just as soon cultivate bio-agents obtained from the environment than obtain them from LLNL's BSL-3.

This comparison defies logic. A terrorist may be much more interested in obtaining a milled biowarfare agent or a biowarfare agent concentrated in solution. By stealing from the LLNL BSL-3 a terrorist or disgruntled employee could obtain one trillion cells in solution from the facility (in use at the time) and many, many, many more from the storage locker/fridge in the bio-lab.

Moreover, LLNL may house novel agents and diseases stemming from the fact the LLNL BSL-3 will be engaged in genetic modification experiments involving bio-warfare agents. Too, the LLNL BSL-3 will be aerosolizing bio-agents and infecting up to 100 small animals at a time. This means that the pathogens will be in a form that can be easily dispersed as an aerosol.

These facts make the LLNL BSL-3 a particularly attractive target. Yet, these facts are not considered in the Revised EA.

The threat of theft by a terrorist or of a disgruntled employee is very real. The DOE and Livermore Lab must deal honestly with the risk, not attempt to minimize analysis (actual risk, not the assessment of risk, is what must be minimized). This document is not an honest evaluation.

Terrorist / Disgruntled Employees

The EA assumes on p. 59 that deliberate damage would cause a fire or rupture the containers of disinfectant. However, if the terrorist scenarios are deliberate (and by definition many of the scenarios would be), it's possible (even likely) that the terrorist would not act in a manner that would cause the bio-agents to be destroyed. This assumption in the Revised EA appears to be on the basis of unfounded conjecture. Again, these assumptions are overly optimistic and do not meet the standard for adequate review.

This document should evaluate the ability of the physical structure to withstand various terrorist scenarios. This document should also disclose LLNL's efforts to train and equip its protective force to deal with possible bioterrorism / nuclear terrorism scenarios.

Further, the Revised EA shirks genuine consideration of the impacts of terrorism by suggesting that because there are other BSL-3s in the U.S., the LLNL BSL-3 will not contribute much to an increased likelihood of an act of terrorism.

We wonder if the Nuclear Regulatory Commission, in producing its court-ordered security analysis regarding the Diablo Canyon Nuclear Plant (ordered by the same 9th Circuit Court), will try to dodge in-depth review on the basis that there are other nuclear power plants in the country and so Diablo Canyon does not add much to the numeric likelihood of a terrorist attack. Under this reasoning, NEPA and the 9th Circuit ruling would be gutted.

The issue at hand, under NEPA, is to adequately and completely analyze the impact of a terrorist attack, not to debate likelihood. In the Revised EA, DOE seems to have confused these two very different approaches. In producing a final document, DOE must remedy this situation.

Security Workers

Although the Revised EA paints a picture of security at LLNL that is fool-proof and functions as a well-oiled machine – this is not an accurate picture of security at the Lab. Recent history -- including spy scandals, whistleblower retaliation, DOE Inspector General reports and Government Accountability Office reports outlined below -- suggests that the Revised EA overstates the completeness of security at LLNL.

For instance, Mathew Zipoli, former security police officer at LLNL (and then-Vice-President of the Security Police Officers Association) went public explaining how low the morale was at Livermore Lab among the security forces. He documented that security operations at LLNL were grossly incomplete due to inadequate training and protection of security officers (e.g., lacking needed protective gear), noncompliance with numerous DOE and other requirements, and more. Security forces were not trained to use protective suits and had no detection devices to deal with a chemical attack by intruders, Zipoli stated.

Please specify in the final NEPA document if (and how) security forces are trained to deal with a biological attack and/or release -- and the equipment they have in that event. Have security forces been trained to handle accidental or deliberate on-site release of BSL-3 agents, including but not limited to live anthrax, botulism, Q fever and plague? How will they handle accidental or deliberate releases involving genetically modified biological agents, including so-called superstrains?

The DOE Inspector General report on LLNL security entitled *Inspection of Lawrence Livermore National Laboratory Protective Force and Special Response* Team found that “Livermore’s ability to comply with the Site Safeguards and Security Plan is Questionable.” (IG Report at 4) The Site Safeguards and Security Plan, a facility master planning document for security, is required by DOE Order 470.1.

“Livermore has consistently had far fewer than the minimum number of security officers required on staff in order to comply with the Site Safeguards and Security Plan. Although the minimum number of SPO-III security officers required to guard LLNL is 81, at times that this investigation was conducted, LLNL had between 43 and 55 certified SPO-III officers available for duty.” (IG Report at 7) “Many of those officers are new hires with minimal experience, due to the high attrition rate.” (IG Report at 7-8) “During the course of our inspection, we noted several significant issues that could directly impact the effectiveness of the Livermore’s Special Response Team. These issues included an increasing attrition rate, and a new hire rate of approximately 50 percent during the past three and one half years.” (IG Report at 6)

Please describe the current state of LLNL security forces including how many you have onsite in general, how many are responsible for the bio-lab at any one time, and whether they have the specialized training and/or equipment to handle a bio-related disaster.

Human Reliability Systems

In April, 2007, the DOE approved security clearances for more than three dozen workers over a 13-month period, despite evidence that those employees had used illegal drugs within the year prior to approval. Energy Secretary Samuel Bodman commissioned a task force to examine DOE’s personnel security program.

According to Secretary Bodman, the program’s existing policies and guidelines are sound and have proven effective over time but they have not been applied consistently. The task force made several recommendations for strengthening the program, including rejecting security clearances for applicants who admit to using illegal drugs within 12 months prior to their clearance request.

This situation is not new. Poor management has plagued the Livermore Lab for a very long time. Reported on February 28, 2003 in the San Jose Mercury News, Linton Brooks, head of NNSA, described the sloppiness of the DOE weapons labs' business practices as "cultural" and "systemic." He criticized the University of California (which managed both LLNL and the Los Alamos Lab) for its detached style of management, saying, "Lax management in one area breeds lax performance in other areas."

The Revised EA generally outlines methods of establishing human reliability but does not provide a realistic assessment of the myriad of implementation flaws that must be expected. Please analyze a scenario where the human reliability programs do not function maximally and evaluate the environmental impacts that could result.

History of Security Failures

In April, 2003, LLNL top security official William Cleveland resigned in response to accusations from the FBI that he stole classified information and passed it to a Chinese informant over a period of years. Cleveland had been head of LLNL's Security Awareness for Employees program, which identifies foreign intelligence threats, briefs LLNL officials traveling to other countries, and gathers information about espionage, since 1993.

Also in the spring of 2003, there were other serious security incidents at LLNL. In one incident, an LLNL security officer's skeleton keys disappeared from a security cabinet. The keys allowed access to virtually every area and facility at LLNL. Security officials waited three weeks before reporting the incident.

In another incident, a LLNL security officer's access badge disappeared. Six weeks passed before this incident was reported to LLNL officials. The access badge, when used in combination with a numeric punch code, opened approximately 3000 office doors at LLNL.

The GAO performed a review of nuclear site security at various DOE facilities from December 2001 through May 2003. GAO found that DOE's National Nuclear Security Administration (NNSA) had substantial problems with management and oversight on security issues and it lacked clearly defined roles and responsibilities resulting in inconsistent contractor oversight.

The GAO said that DOE contractors fail to analyze security problems consistently, and that corrective actions are developed without fully considering the problems' root causes and risks posed. Furthermore, NNSA is shorthanded and may lack adequate staff to oversee security activities. These security failures are just a sample of many others that have occurred over the past decade.

The possible effects of terrorist attacks or other security failures on Livermore Lab vary widely depending on whether biological agents are involved, what biological agents are involved, what quantities are involved, etc. In addition, at LLNL, nuclear materials could be involved as well. In addition to environmental impacts, the economic and psychological consequences can also be significant. Impacts should be measured in terms of contamination area, health effects, and economic consequences.

The Revised EA must try to quantify the environmental impacts of these acts and cannot avoid an honest assessment by arguing such things as terrorists won't be interested in a BSL-3 because certain bio-agents exist occasionally in nature, or that the maximum credible release scenario involves the loosened caps on a centrifuge inside the BSL-3.

Precedent-Setting Nature of the Revised EA Must be Considered

The adequacy and completeness of the security analysis for the LLNL BSL-3 is important first and foremost because of the severity of the threat and the potentially catastrophic nature of its impacts. Further, the completeness of the review is critical because it will be precedent setting in at least two ways.

1. As mentioned this is the first terrorism / security analysis being conducted pursuant to the 9th Circuit ruling in two cases, (a) litigation brought against the Nuclear Regulatory commission regarding security risks at its Diablo Canyon Nuclear Power Plant and (b) litigation on the adequacy of the EA and FONSI for this BSL-3 (brought by Tri-Valley CAREs and Nuclear Watch of New Mexico). Thus, the inadequate job done by DOE on this Revised EA is likely to reverberate with other federal agencies if it is not appropriately remedied.

2. The LLNL BSL-3 is the first DOE facility to undergo a terrorism / security analysis. Thus, the inadequate job done by DOE in this instance is likely to reverberate with other DOE NEPA reviews. In this regard, we note that DOE has issued only interim guidance for preparation of this type of analysis under NEPA. Perhaps DOE is putting the cart before the horse here -- and this review is so startlingly inadequate in part because there is no final guidance in place. Thus, the DOE should hit the pause button on this process and complete its guidance. Certainly, this Revised EA cries out for guidance. We are concerned, too, that if this inadequate assessment is used by DOE to attempt to justify a new FONSI, that will signal other DOE facilities that the agency is not serious about examining terrorist / security issues.

Bio-Accidents at LLNL That Have Happened in the Existing, Lower-Hazard Facility Could be Severe in the BSL-3

The revised Environmental Assessment did not analyze the environmental and health impacts of a release of 100 liters of bio-warfare agents at one time. In fact, the revised EA failed to even disclose that other Livermore Lab and Department of Energy documents state the BSL-3 will house up 25,000 different samples of pathogens adding up to a total of 100 liters of bio-agents at a time. This is a large amount and the EA should state this number and analyze the environmental impacts of a release of this magnitude.

Although LLNL boasts a perfect record, our investigations found that LLNL had several mishaps in the past with their lower level BSL-1 and BSL-2 facilities, including incidents wherein:

- (1) employees mislabeled bio-wastes, causing hazardous waste personnel to suffer needle puncture,
- (2) employees potentially used and then threw out unattenuated (e.g., live) anthrax with the general trash. The experiments were not supposed to involve unattenuated anthrax at all. And,
- (3) an employee dropped radioactive bio-probes on the floor, left the spill over the weekend, and tracked radioactivity off-site.

On November 3, 2003, Tri-Valley CAREs filed a Freedom of Information Act request for releases and contamination incidents since 1977 at the LLNL Biology and Biotechnology Research program. This was defined programmatically on the LLNL web. The documents we received include but are not limited to:

- An incident report detailing a series of mishaps in March 1999 with airborne *Bacillus anthracis*, the causative agent for anthrax. On March 1, 1999, experiments indicated that LLNL was mistakenly conducting experiments with a virulent strain of *Bacillus anthracis* "obtained from a BBRP colleague." LLNL did not terminate operations with the organism until March 5, 1999. The Institutional biosafety

officer was not notified until March 17. The report's findings include that "The Biomedical Technician did not use engineering controls and mistakenly disposed of contaminated equipment and utensils in the trash." The findings also specify that "Access Control" was not maintained and "cross contamination" with nearby food was possible.

- A final occurrence report detailing an accident in which a LLNL biolab employee sent improperly labeled waste to the LLNL hazardous waste facility. The waste was listed as "99% laboratory trash (with 2-mercaptoethanol, phenol and chloroform)." However, the bag improperly contained "at least two hypodermic needles that were not listed on the label." As a result: "One of the needles penetrated the bag and stuck the technician in his arm."

In 2006, Tri-Valley CAREs obtained a copy of a DOE/NSA report detailing safety violations and accidents at LLNL including an account of a 2005 radioactive phosphorus spill in the LLNL biology center. In that instance, Lab bio-personnel failed to respond when the accident was reported. No qualified staff person came to examine the contaminated worker or to develop a cleanup plan for the spill. As a result, the worker tracked radioactive material off-site and the bio-building remained in what the DOE/NSA report called "an unknown state" for several days.

Although it is often claimed that bio-accidents rarely happen in the US, the truth is much less clear. The frequency of accidents is widely disputed and there is not a comprehensive federal reporting system for accidents and releases. In fact, in the last few years there have been several lab-acquired infections and agent releases in biolabs in the US that went undisclosed for months.¹ A more honest history of recent US accidents, releases, and infections should be included in this NEPA analysis including the accidents footnoted below.

In one instance that only became publicly known in the past few weeks, Texas A&M is being investigated after failing to timely report to the Center for Disease Control and Prevention (CDC) that a student researcher was infected with brucellosis in 2006. Brucellosis is an infectious disease caused by the bacteria brucella which is typically transmitted by animals. The student was accidentally infected while cleaning a chamber used to infect mice with aerosolized brucella for research purposes on Feb. 9, 2006. The researcher told Texas A&M officials of the brucellosis diagnosis on April 10 or 11, 2006.

The incident occurred when the researcher was cleaning a chamber that contained aerosolized brucella by climbing partially into it, which Texas A&M officials said was inappropriate lab protocol. Texas A&M officials later concluded that the brucella bacteria likely entered her body via her eyes as a result of this improper procedure.

This type of agent would be permitted to be studied at LLNL. The Texas A&M incident is a case of human error – a type of error that we are concerned is a great risk at LLNL.

More than 400 labs across the country are now using bioweapons for research with about 20,000 people at those facilities, a dramatic rise from years past. With the flood of new researchers entering the field, the chance for error due to inexperience increases.

¹ Fort Detrick researcher exposed to Ebola from pinprick in 2004. Boston University lab workers were exposed to Tularemia in 2000 and again in 2004. Anthrax spores were found strewn outside of lab rooms in Fort Detrick, leaving one worker testing positive for exposure in April 2002. Oakland Children's Hospital improperly received and experimented with virulent anthrax until the FBI intervened in 2004. Foot and Mouth Disease spread to different internal parts of Plum Island facility in 2004. Laboratory-acquired infection almost killed a government microbiologist in Beltsville, Maryland in 2003. Workers at the US Department of Agriculture's (USDA) Food Safety Intervention Technologies Research Unit in Wyndmoor, Pa., fell ill in May 2002. In March, 2000, an USAMRIID worker contracted glanders due to accidental exposure.

Further the accident described above involved an aerosol chamber. A gaseous suspension of fine particles resulting from aerosolization makes these agents far more dangerous in the event of accidental occupational exposure and, in the case of failure of containment, public exposure. The Revised EA should look at the specific hazards of aerosolization for workers and the local community in its accident analysis.

The Revised EA should not rely upon outdated accident modeling. Please make sure that the accident modeling relies upon current, LLNL site specific, and pathogen specific data.

Please describe how the public will be notified in the event of an accidental release or lab worker exposure and/or infection. Additionally, please provide the facility limits for the amount of bio-agents that will be stored inside the facility as a whole and for each room. Also please describe whether (and how) LLNL and/or DOE NNSA will mandate public reporting of security breaches, loss or inability to account for biological materials, and environmental releases.

DOE Has a History of Accidents at LLNL, which are Relevant to Assessing the Hazards of the Proposed Action

LLNL main site groundwater is substantially contaminated with volatile organic compounds (VOCs) such as trichloroethylene, carbon tetrachloride, Freon, chromium and tritium (radioactive hydrogen) above state and federal maximum contaminant levels, also called "action levels."

Soils on site have additionally been contaminated with plutonium above the federal "screening level." There is an off-site contaminated groundwater plume emanating from the LLNL main site. The southwestern edge of that off-site plume includes groundwater underneath neighborhood homes.

Remediation for the above-listed pollution is part of the current and ongoing LLNL main site Superfund cleanup process. That cleanup process has been calculated by LLNL to require about 53 years.

The LLNL main site and surrounding community in Livermore have been subjected to elevated levels of tritium, among other contaminants. This LLNL operating history with radioactive and toxic materials is relevant to the proposed operation of the LLNL BSL-3 because similar incidents could occur with biological agents. LLNL has had numerous releases of tritium over its years of operation, resulting from a variety of factors, including filter failures and employee error, two issues relevant to the planned operation of a BSL-3 at LLNL. The 1991 Report of the Task Group on Operation of DOE Tritium lists the following tritium accidents for LLNL between 1986 and 1991 --

:

- 125 curies, released 12/15/86 due to a failed pump and cryogenic vessel breach;
- 198 curies, released 4/14/87 due to equipment failure and operator error;
- 145 curies, released 1/19/88 unknown cause or stack malfunction;
- 138 curies, released 1/25/88 unknown cause or stack malfunction;
- 653 curies, released 5/15/88 due to unexpected presence of tritium in gases being vented;
- 120 curies, released 8/1/88 unknown cause or stack monitor malfunction;
- 112 curies, released 2/28/89 unknown cause or stack monitor malfunction;
- 329 curies, released 8/22/89 due to improper pressure relief of container.
- 112 curies, released 10/31/89 due to mistaken belief that a palladium bed contained only deuterium and (non-radioactive) hydrogen;

- 144 curies, released 4/2/91 due to improper preparation of a reservoir.

The Report of the Task Group on Operation of DOE Tritium Facilities further states that management failures at LLNL were the direct cause of the "accidental release of tritium on April 2, 1991 and the resultant radiological exposure of facility personnel."

There have been other incidents at LLNL where tritium has been release to the environment. To give but one example, on December 24, 1990, building 292 was contaminated due to freezing weather that caused a flood.

In addition, that freeze resulted in a tritium leak in an underground tank, releasing tritium into the soil. A pine tree in the area was tested and found to be drawing the radioactive water through its roots and transpiring tritium through the needles into the air at concentrations measured at 6 million picocuries of tritium per liter of water. The state and federal maximum contaminant level for tritium in water is 20,000 picocuries per liter. The tritium released from the tank into the soil in this accident also migrated downward, soon thereafter reaching into the groundwater. See Screening Calculations for the Radiological Hazard from Tritiated Water, Tritium Emissions from a Pine Tree Adjacent to Building 292, LLNL.

Deficiencies in safety practices led the Defense Nuclear Facilities Safety Board (DNFSB) to recommend and obtain shut down of all plutonium experiments and machining operations at LLNL's plutonium facility for more than 6 months in 1995, according to testimony from DNFSB officials at a December 6, 1995 public meeting in Livermore. The DNFSB was created by Congress to monitor operations at DOE's defense facilities. DNFSB officials cited deficiencies in safety practices at LLNL including a missed inspection and lack of procedures to ensure that the plutonium facility's ventilation, nuclear accident alarms, fire suppression systems and emergency power were adequately maintained, tested or operated.

After LLNL proclaimed it had resolved the problems cited by DNFSB and reopened its plutonium operations, the DNFSB had to intervene again and obtain a shut down of all daily operations in the LLNL plutonium facility in October 1997. In July of 1997, LLNL had been cited for 15 serious criticality safety violations. A criticality is a runaway nuclear chain reaction. In October, a DNFSB investigation uncovered additional problems at the LLNL plutonium facility. The DNFSB report cites:

- unaddressed fire dangers;
- situations where criticality safety personnel "do not appear to have a presence in the workplace";
- situations where "no supervisor appears to be responsible for work being done by plutonium handlers and technicians";
- planned corrective measures that that do not recognize the actual problems and therefore do not propose to correct them; and
- work permits for handling, moving and packaging nuclear material that contain work description errors and omissions.

In its October 1997 report, the DNFSB further notes an instance where the investigator directly observed an operation involving uranium in which work was performed "without regard to its description in the permits."

The DNFSB published a notice in the federal register citing LLNL with storing plutonium in paint cans and food tins.

In January 2005, the LLNL plutonium facility was again shut down due to systemic safety problems. The DNFSB weekly reports on the shutdown contain numerous violations, including defects in the plutonium facility's equipment, safety management and radiation protection. Various reports stated that glove boxes had

inadequate seismic restraints, cracked ducts containing plutonium dust were not repaired and were instead taped over, inadequate records were maintained so that blueprints of some glove boxes could not be found and the operating history of the workstations, including what materials had been used in them, was lost.

In October 2003, twelve LLNL employees were potentially exposed to plutonium that leaked from a glove box known to have a faulty seal, but used nonetheless. The leak occurred after a routine power outage caused the fan responsible for maintaining negative air flow to stop working. Next, the alarm nearest the glove box failed to sound. However, an alarm positioned outside the door of the room was triggered by the leak. When that alarm went off, it was dismissed as an aberration. Seven plutonium handlers and five security police officers were allowed to enter the plutonium-contaminated room before the release was discovered.

Over a 6-month period in 2004, multiple workers at LLNL were exposed to airborne plutonium particles on at least 3 to 5 separate occasions while packaging plutonium-contaminated wastes. One of the largest fines in LLNL history resulted from the circumstances that led to these exposures. The Lab was cited for having chronic and systemically poor management.

Additionally, plutonium from LLNL has found its way into the Livermore community. Elevated levels of plutonium have been found in off-site air monitors to the east of LLNL and in soils in a City park to the west of LLNL.

Along with plutonium, americium was accidentally released through drains at Livermore Lab and has entered the City's Sewage Treatment Plant. Over a 15-month period in the mid-1990's, Livermore Lab's releases to the City Sewage Treatment Plant violated its permit limit on 14 occasions. These releases included heavy metals and chemical pollutants.

In February 1997, news accounts carried the story of an accident involving a uranium fire at LLNL. The incident involved the ignition of uranium filings in a workstation. A machine shop worker received radioactive contamination on his hair and shoes. Two LLNL fire fighters who responded to the accident received contamination on their gear.

The list above does not purport to be a complete list of accidents at LLNL, but is only a small sampler intended to be instructive as to some of the types of accidents that occur with alarming frequency at LLNL. These and other accidents at LLNL are relevant to the BSL-3 at LLNL because the same sorts of errors and disregard for safety regulations could result in biological agent releases, just as they have resulted in radioactive and toxic releases at LLNL.

HEPA Filter Analysis is Inadequate and Must be Augmented

Most HEPA filters at LLNL are flimsy, weak, fiberglass, paper and glue structures mounted in wood or metal frames that can fail completely when wet, plugged, hot and over pressured from fires, explosions, blowers and even severe storms. According to publicly available documents, HEPA filters have an overall failure rate at DOE facilities of approximately 12%. Even under optimal conditions, HEPA filters are unable to effectively contain all bio-agents measuring between 0.03 and 0.3 micrometers. HEPA filters can be ineffective against the physical characteristics of many bio-agents, such as *Rickettsia*.

Others have detailed the potential problems with HEPA filters and have called on DOE to conduct a more thorough analysis in its Revised EA. We concur. Please address how LLNL intends to compensate for the inherent weaknesses in the filtration system.

Furthermore, too many of the accident and terrorism scenarios in the Revised EA anticipate perfect functioning of the HEPA filters. The analysis should also disclose the impacts if the scenario involves HEPA failure.

Earthquake Analysis is Inadequate and Must be Augmented

This BSL-3 facility should not be operated in this seismically active area. The Livermore Lab sits less than 200 feet from the Las Positas fault zone and the Greenville fault is nearby. An earthquake in 1980 injured 44 people and cost LLNL many millions in structural damages. In 2004 an LLNL study found that 108 buildings on-site have potential seismic problems. 22 have unacceptable risks and 41 need detailed evaluation.

The Revised Environmental Assessment mentions that new research by the USGS determined there is a 62% chance that one or more magnitude 6.7 earthquake will occur in the area within the next 30 years. Other studies predict a MM 10 shaking (very violent – on a scale of 1 to 10) to occur in the Livermore area. The revised EA mentions these facts, but does not fully account for them in conducting its hazards analysis.

Need for Programmatic Review

Construction of the LLNL and LANL BSL-3 facilities, since they are the first advanced biowarfare research facilities within the Department of Energy, will establish a precedent for future BSL-3s and related biological and chemical agent research facilities at DOE facilities.

DOE has proposed operating advanced biowarfare agent research labs in Livermore, Los Alamos, Oak Ridge and several other sites. DOE's own Inspector General Report 0695 has stated that the biological research activities within the Department of Energy lacked appropriate federal oversight, consistent policy, and standardized implementing procedures, resulting in the potential for greater risks to workers and possibly others.

Quotes from the DOE IG Report, include:

"We concluded that there was insufficient organization, coordination, and direction in the Department's biological select agent activities. Specifically, the Department's activities lacked sufficient Federal oversight, consistent policy, and standardized implementing procedures, resulting in the potential for greater risk to workers and possibly others from exposure to biological select agents and select agent material maintained by the Department." In the observations and conclusions section on page 2 of the IG report.

"Ensure that required NEPA reviews are conducted prior to the start of biological select agent and select agent material activities and revised, as needed, when significant changes occur in the activities." Pg. 25 recommendations section.

"The department responded to this recommendation in saying that "the Department will 'continue to address biological research within individual laboratory annual NEPA planning summaries and otherwise according to Departmental requirements' to ensure that appropriate consideration is given to NEPA compliance early in the planning process." Pg 26 Management comments.

Please describe how this report has been responded to and what is happening now regarding DOE's efforts to coordinate select agent programs. This cries out for a NEPA programmatic review so that each lab will have

clear guidance on its role in the Department's network of laboratories to avoid mismanagement and duplication. An adequate review of cumulative impacts should be conducted.

Further, as stated above, a review of alternatives should be undertaken as to where the best locations would be for bio-work in the DOE complex or whether it would be wiser to have these labs outside the purview of DOE entirely and within the purview of another agency, such as the Centers for Disease Control.

Need for Non-proliferation Analysis / Compliance with International Law

Aerosolization of select agents is potentially a form of weaponizing them. At a minimum, it is a step in the process toward weaponization. So is conducting genetic modifications of bio-warfare agents.

The Biological Weapons Convention (BWC), a treaty ratified by 144 nations including the United States and Russia that came into force in 1972, prohibits the production, stockpiling, development, and use of biological weapons. Article 1 of the Convention permits research on dangerous biological agents and toxins that is "peaceful, prophylactic, or protective" in nature.

However, distinctions between offensive and defensive applications of research on bioterrorism agents are difficult to establish at numerous stages of the research process.

To resolve this dual-use dilemma, in September of 1998, BWC member states began a process of drafting a verification and enforcement protocol to ensure routine declarations of research on biological warfare agents and inspections of declared facilities. Unfortunately, during negotiations in November 2001, the U.S. announced that it would not permit a binding verification agreement to move forward. As a result, international monitoring of biological defense and warfare is unlikely to emerge in the near future.

Livermore Lab and Los Alamos Lab have designed and developed every nuclear weapon in the U.S. arsenal, and LLNL just won the design competition to develop the next new U.S. nuclear warhead. LLNL is known worldwide as a "successful" facility for the design of nuclear weapons of mass destruction. Collocation of an advanced biowarfare agent facility inside LLNL's classified nuclear weapons laboratory presents a whole host of issues that could undermine the Biological Weapons Convention.

First, this type of research is inherently dual use. That is, the "defensive" or "peaceful" bio-weapon research on select agents that will be conducted at LLNL will be virtually indistinguishable from offensive work in the early stages.

Moreover, where defensive programs', methods, training and equipment meet the requirements of offensive programs, the potential for offensive uses for the program in a future crisis is evident. Please address how LLNL will ensure that their work could not be easily adapted for offensive purposes – alleviating the fears of the US public and other nations.

Second, collocation within highly classified facilities may pose unique problems for verification and enforcement of the BWC. It may be extremely difficult for anyone outside of the facility to verify that the program is restricted to defensive purposes. *Please provide a thoughtful analysis of how concerned citizens and countries could verify that the research in the laboratory is limited to purely defensive activities.*

Third, collocation creates a “perception problem”, irrespective of whether offensive or defensive work is conducted inside a classified nuclear weapons lab. Other states and groups may perceive that new biological weapons are under production behind closed doors. Please provide an explanation of how LLNL plans to contend with this serious perception problem.

Fourth, collocation creates secrecy problems that undermine efforts to evaluate a state’s compliance with the BWC. Please describe how LLNL will ensure that the principles of openness, transparency and public accountability will guide the work conducted at the BSL-3.

Please provide a dedicated section in the Revised EA to address concerns posed by the placement of advanced biowarfare agent research inside secret nuclear weapons laboratories.

NBACC Connections Must be Detailed in the Revised EA

The Department of Homeland Security has inaugurated its National Biodefense Analysis and Countermeasures Center (NBACC) that is headquartered in Fort Detrick, Maryland but has pieces located at DOE, specifically at LLNL.

According to a slide show in February 2004 by LTC George Korch, Science and Technology Directorate at the Department of Homeland Security, NBACC will develop, characterize, produce and weaponize new and genetically engineered biological agents. <http://www.cbwtransparency.org/archive/nbacc.pdf>

Widespread concern is growing that these activities will not only violate the BWC’s restriction on developing and producing agent delivery devices but that they may effectively give the United States a modern offensive biological weapons capability. We know that work at LLNL will intersect with work done for the NBACC.

We don’t believe that the US government would stand by while many countries of the world upgraded, expanded and undertook cutting edge “biodefense” research inside their secret military installations. The US should not hold a different measuring stick to our own actions. Overhauling existing labs in military facilities so that they can perform cutting edge genetic research on agents known for their superior weapons capabilities sends the wrong message to the rest of the world.

Although some of this research may well be legitimate and necessary, it should be conducted under the auspices of civilian agencies.

Please consider the following critical analysis of US biodefense work by Ambassador James Leonard, Milton Leitenberg, Richard Spertzel entitled *Biodefense Crossing the Line* in the Environmental Impact Statement and include a copy for public consideration. <http://www.fas.org/irp/threat/cbw/biodefense.pdf>

Ambassador Leonard was the chief U.S. negotiator for the Biological Weapons Convention under President Richard Nixon as Assistant Director of the U.S. Arms Control and Disarmament Agency (ACDA) from 1969 to 1973.

Please provide a dedicated section in the Revised EA to address concerns posed by the placement of advanced biowarfare agent research inside secret US military laboratories.

Lack of Adequate Whistleblower Protection Must be Addressed

There is a serious lack of adequate oversight of LLNL facilities. No independent regulatory agency is responsible for safety at LLNL on a continuing basis. Safety is often a matter of self-regulation (e.g., DOE regulating itself). In this scenario, it is essential for workers to be protected if they report safety or health problems associated with the BSL-3 facility.

A mechanism should be in place to provide all workers with meaningful whistleblower protections. Moreover, all workers should be apprised of criminal laws against developing biological weapons. 18 USC § 175. Workers who suspect that their work is for offensive purposes or is incompatible with international law should be given robust and effective whistleblower protections should they speak up about their concerns.

Because the United States is currently opposed to binding external constraints and oversight of scientists and would prefer to have scientists self-monitor their research through the use of Institutional Biosafety Committees and similar committees, it is essential that scientists working in the biodefense arena be afforded the structure within which they may comfortably speak up about potential misuse of their research activities. It is the Department of Energy's responsibility to provide this structure.

Please state in the Revised EA if such a structure exists and how it will be designed so that the public can be informed about the self-regulation process of the research at LLNL.

18 USC § 175 is the US criminal implementing regulation for the Biological Weapons Convention. It articulates prohibitions with respect to biological weapons. Specifically, it prohibits anyone from knowingly developing, producing, stockpiling, transferring, acquiring, retaining, or possessing any biological agent, toxin, or delivery system for use as a weapon. We are concerned that offensive research could occur, whether sanctioned by any management or not, and prohibitions should be clearly stated and enforced. As you know, the FBI's no. 1 suspect for the anthrax releases that plagued the country in the aftermath of September 11th was a US government scientist. These events can and do happen and preventative measures should be taken.

We want to preemptively foreclose a shallow response to our concerns that "the Biological Weapons Convention prevents the US from developing offensive weapons." Often we hear from federal officials simply that "the US signed and ratified the treaty and therefore there could be no weapons here." The weakness of this response lies in the fact that the language of the BWC is inherently problematic. It allows for bioweapons research so long as it is for prophylactic, protective or other peaceful purposes. This loophole makes the treaty's interpretation one that is "intent based".

We believe that the US must do more than waive a poorly constructed treaty around and say it is in *technical* compliance. Thus, above and beyond the BWC, the US should spare no effort in demonstrating to the rest of the world that it is not engaging in biological research that skirts the treaty. It should do so for the safety of its own citizens. A robust system to ensure transparency should be implemented.

This should be done through maximum transparency efforts. An alternative in the alternatives analysis in the Revised EA, for example, DOE should discuss this problem and should evaluate the possibility of transferring this work to a civilian laboratory where oversight and transparency would be outside of the control of the US nuclear weapons establishment. This would send a message to the rest of the world, one that we could then encourage other nations to mirror.

The Dual Use Dilemma Must be Considered in the Revised EA

The bio-warfare agent research at Livermore Lab is inherently dual-use. Although DOE states that this BSL-3 is purely defensive – there always remains a chance that they could be used for offensive weapons research at some later point. As mentioned above, the “defensive research” at LLNL will be virtually indistinguishable from “offensive research”.

With the secrecy of the program, the US aversion to inspection or verification protocols at the Biological Weapons Convention, the opaque nature of the LLNL Institutional Biosafety Committee, and with the lack of independent transparent oversight, its difficult to tell what type of research will be conducted there.

Transparency Issues Must be Addressed in the Revised EA

Biological defense laboratories study organisms categorized by the federal government as potential agents of bio-terrorism. Controversies in biodefense research stem from both the secrecy with which it is associated and the difficulty in distinguishing between its offensive and defensive applications.

Federally-funded research on biological weapons is marred by a history of secrecy and misinformation, most strikingly in the hidden offensive bio-warfare program carried out by the U.S. military from the beginning of the Cold War through the early 1970s.

Over much of the last thirty years, the Department of Defense has provided an annual report to Congress explaining the nature and extent of its biological research program. After this disclosure policy was discontinued in the early 1990s, there has been growing concern about the potential for offensive research in U.S. biodefense laboratories. The DOE going into the bio-warfare agent research business at its classified nuclear weapons labs does nothing to allay that concern.

Institutional Biosafety Committees must be analyzed in greater depth in the EA:

Tri-Valley CAREs is interested in all aspects of the IBC because of the unique responsibility placed upon the IBC by the EA to ensure that the Livermore Lab’s biological research programs comply with all applicable laws and regulations to ensure the health and safety of the Livermore community is protected. The community members are the only unaffiliated members mandated to be on the IBC and therefore they have a heightened responsibility to represent the interests of the community. We are seeking to better understand how they receive their position and the role that they play with respect to the Livermore Lab’s IBC. The Revised EA must assess these questions.

For example, the Revised EA should discuss how the community members are appointed / nominated or selected for the Institutional Bio-Safety Committee. We understand that all IBC’s have community members sitting on them in order to comply with NIH guidelines. If there is a written policy outlining how the Livermore Lab’s IBC chooses its community members, please detail this policy. Otherwise, if there is no formalized policy, describe how you select community members for this committee. Is there an application process? Can community members informally request to be on the committee?

Our experience with trying to obtain information about --and attend meetings of -- the LLNL IBC has continually been frustrated by DOE and LLNL. Lack of transparency has been an ongoing problem.

For example, on September 16, 2003, Tri-Valley CAREs submitted a request for Agendas, Decisional Documents, Minutes, Rules / Procedures by which the Institutional Bio-safety Committee (IBC) operates, and a roster and qualifications for all members for the period of January 1, 2001 forward, pursuant to guidelines established by the National Institute of Health (NIH) that require that the IBC provide these records to the public upon request.

The IBC was established by the Director of the Laboratory in 1991, and operates through the Council on Biology and Biotechnology. The IBC functions as a peer review committee, focusing on the safe and legal use of biological materials.

The Department of Energy declined to comply with our request for copies as provided under the NIH Guidelines, and instead instructed Tri-Valley CAREs to submit our request via the California Public Records Act, a process that would require us to pay burdensome fees to obtain the documents.

On September 25, 2003, Tri-Valley CAREs submitted a Freedom of Information Act (FOIA) request for the same information we had requested above. We submitted this FOIA request in order to better understand the role of the IBC because DOE relies so heavily on this body to ensure that "the public will be involved in approval of BSL-3 research and review of safety and compliance protocol[s]."

Five months later we received responsive documents to this request from the DOE on February 13, 2004. These documents included meeting minutes, agendas, a charter, an IBC roster of members and research applications entitled "Notice of Renewals" that had been issued between January 1, 2001 and the present.

After receiving these documents, we contacted the Department of Energy and requested that agendas be sent to our office for future IBC meetings. We were told that the only way to obtain agendas or other documents was to request them through a time-consuming and burdensome Freedom of Information Act request. We were also told that the IBC meetings were not open to the public on account of the difficult nature of members of the public getting into the Livermore Lab site. The IBC's refusal to provide agendas and minutes prospectively, and their refusal to allow members of the public to attend their meetings, prevents Tri-Valley CAREs from participating and thwarts public involvement.

These documents also revealed that there had recently been a dramatic increase in applications for experiments conducted within the biological programs at Livermore Lab and that this increase triggered a need for an integrating review of the programs and a rethinking of the purpose of the IBC itself:

"There is a cascade of microbiological applications coming from many new parts of LLNL...causing a rethinking of several functions at the Laboratory, including the role of the IBC, the need for an integrating review system for microbiological research, and revisions to the Lab's NEPA approval from DOE." -- IBC Memorandum to IBC Committee Members dated April 11, 2001

The DOE relies upon its Site-Wide Environmental Impact Statements as the NEPA reviews that authorize the Livermore Lab's current bio-programs. These "Site-Wide" studies do not provide enough specific programmatic information about the Biology and Biotechnology Research Program (BBRP) at LLNL. Therefore, the Revised EA must contain the analysis (and, as stated above, a full EIS should be conducted)

The EA must include a detailed analysis of the BBRP, including the role of the IBC, the dangers posed by genetic modification of bio-agents, accident scenarios associated with bio-agents at the lab from earthquakes, fires, transportation, or terrorist threats and without acknowledging the recent significant growth of the bio-

programs at Livermore Lab. The IBC agreed in its memorandum quoted above that the cascade of applications has triggered a need for an integrating review. It has yet to be done.

In summary, the bio-programs at LLNL, collectively called the BBRP, have undergone tremendous recent growth and now include risky experiments such as aerosolization and genetic modification of agents that are highly transmissible and virulent. These changes highlight the need for comprehensive review of these programs pursuant to the National Environmental Policy Act.

Further, we note that, "NIH has recognized the importance of IBC members "who represent the interest of the surrounding community with respect to health and protection of the environment." (NIH Guidelines, Section IV-B-2-a-(1)). Section IV-B-2-a-(6) of the NIH Guidelines on Recombinant DNA Research encourage IBC's to follow a policy of openness: When possible and consistent with protection of privacy and proprietary interests, the institution is encouraged to open its Institutional Biosafety Committee meetings to the public.

In October 2003, the National Academy of Sciences recognized this massive growth in US bio-research and issued a report cautioning the U.S. about the hidden dangers of dual-uses of this type of research and lamenting that there were few guidelines in place to prevent the "misuse of the tools, technology, or knowledge base of this research enterprise for offensive military or terrorist purposes." A response to this report calls upon the Institutional Biosafety Committees to ensure that US biodefense work doesn't undermine the BWC.

Please detail how the IBC will ensure that work at LLNL will be transparent, will not weaken or complicate the BWC - and describe the selection process for the IBC members, including scientists and community members.

Conclusion

This comment incorporates all of Tri-Valley CAREs' previous comments on the proposed BSL-3. Moreover, Tri-Valley CAREs requests that all documents cited in our comments be included in the administrative record for the LLNL BSL-3. If DOE cannot locate a document for its record, Tri-Valley CAREs will be happy to assist in that endeavor.

Tri-Valley CAREs also submits these comments under protest of DOE's continuing refusal to extend the public comment period and hold at least one public hearing or meeting. We reiterate that the DOE released the Revised EA with no address, phone or fax number for sending comments and no due date. This crucial information was only available in the DOE press release. The lack of availability of comment submittal information is likely to have a deleterious impact on the public's ability to participate. Too, the DOE did not even take the modest, minimal step of informing those who had commented on the original draft EA that the draft Revised EA was now available for comment. Moreover, the short comment period meant that Tri-Valley CAREs' monthly newsletter, carrying the news of the Revised EA via bulk mail will get to our members too late for them to comment by the advertised due date of May 11, 2007.

Then, as noted, the DOE fax number given in its press release did not operate on May 11 (and may not have operated prior to that day for all we know -- we were alerted by about 13 people on May 11).

We appreciate DOE's consideration of these comments. Should an extension be granted, we would like to submit additional comments.

Sincerely,

Marylia Kelley
Executive Director

Loulana Miles
Staff Attorney

-----Original Message-----

From: daniel@nowwatchthis.com [<mailto:daniel@nowwatchthis.com>]

Sent: Saturday, May 05, 2007 9:05 PM

To: Brinker, Samuel

Subject: Comments on the proposed BSL-3 at Livermore Lab

Dear Mr. Brinker

I strongly oppose developing a bio-warfare research facility at the Lawrence Livermore Lab. I live near the lab in Pleasanton, and my daughter lives in Livermore.

The deadly agents that are the subject of the proposed research have a sole purpose, which is to kill people in a war. It is ludicrous to keep these in a major urban area.

It is useful to have treaties with other nations to reduce or eliminate nuclear and biological weapons. Putting research for both nuclear and biological weapons on the same site will make it hard to obtain treaties for either nuclear or biological weapons limitations.

There Livermore Lab should be a national treasure. There are many scientific problems worthy of the attention of the best minds in the world, such as we have at the Livermore lab.

The lab is run by the Department of Energy, not the Department of Defense.

Producing reliable energy for future generations is one of the most important research topics of our time. A solution to this issue could provide more security for our country and any number of weapon.

Please, cancel plans to develop biological weapons in Livermore. Instead, use our resources to bring scientific innovation to our community and nation that promotes peace and prosperity for all of us.

Regards,

Daniel Kendrick
4274 Fairlands Drive
Pleasanton, CA 94588

925.890.8162

Beverly Kirig
645 N. Livermore Ave #8
Livermore CA 94551
May 7, 2007

Samuel Brinker
U. S. D. O. E. N. N. S. A.

The Environmental Assessment (EA) does not adequately address the hazards of a BSL-3 in Livermore. The proposed law needs a complete Environmental Impact Study for the following reasons:

A bio-law should not be placed in the same facility as a nuclear lab. The dual research of the two potentially lethal experiments is double jeopardy.

The lab is in a highly populated area. Whether it be accidental, terrorist caused or natural disaster such as earthquakes, the risk to both the population and the area is beyond contemplation. Besides the pathogens must be transported on highways where risk of accident is always present.

25,000 different samples of pathogens are quietly proposed to be used at the same time. This equal 100 liters which is greater than the EA considers, especially in view of aerolization. The EA acknowledges the "dramatic health impacts" that can result in such releases. Consider the agents being used: Q fever, anthrax, plague, for just starters.

The BSL-3 is proposed for defensive purposes only. Most of what is done is secret. No one would

know if the research being done was for defensive or offensive purposes.

The present revised EA ordered by the court does not adequately address the possibility of a terrorist attack or one by a disgruntled person. In spite of the acknowledged health impacts the report says most pathogens will be destroyed by the blast or the heat that is generated by the blast. The EA assumes terrorists would obtain their pathogens through nature rather than large quantities that an established lab would have. This is absurd.

This is the first time the DOE has included a terrorist threats in environmental studies. In spite of revision it is inadequate.

The EA fails to have oversight for safety on a continuing basis. Historically this has not worked. Thorough oversight is essential.

The U.S. has treaties with other nations prohibiting W.M.D. We exert enormous pressure on countries we even suspect of developing them. Yet we are set to create both B.S.F. 3 and B.S.F. 4's that have the freedom for any experiments the government chooses. The morality of these labs is highly questionable. We cannot prohibit other countries and pursue W.M.D.'s ourselves under cover of "defense." The only legitimate research is anti-dotes, not in the B.S.F. proposals. We must keep our trust with the rest of the world to eliminate bio weapons legitimately for the

3

safety of the world.

As a first step a public meeting must be held so that the community can be informed and comments can be made. Then a complete Environmental Impact Study must be prepared. The DOE is preparing one for the proposed BSL3 in Los Alamos.

The same should be done here. This BSL3 directly involves our health and our lives which in the name of humanity should not be taken lightly.

Sincerely,

Beverly King

-----Original Message-----

From: Nicole Lucchesi [<mailto:nikki@soundwavestudios.com>]

Sent: Tuesday, April 24, 2007 7:44 PM

To: Brinker, Samuel

Subject: Letter of opposition to additional labs at Lawrence Livermore

Attn: Samuel Brinker

April 24, 2006

My name is Nicole Lucchesi, I reside in Oakland California and am a full time mother of two young children. It has recently come to my attention, that the Department of Defense in conjunction with the Lawrence Livermore Labs intends to create additional labs for bio- warfare testing and to increase its yield of Depleted Uranium for explosion testing in Tracy. Personally, I find both of these proposed developments abhorrent, and as such, I am compelled to write this letter as a concerned citizen of California and the local community of the SF Bay Area. I submit this letter to be a part of public record as my formal statement that I resolutely oppose such a reality coming to fruition. Because Livermore Lab sits within a 50 mile radius of seven million people, it would be prudent for the Energy Department to be more mindful of the potential disaster which could befall our population in the event that any of these substances could be released into the air, into the water aqueduct nearby, or into the soils which sustain the agriculture of California's Central Valley... With California being one of the top producing Agricultural states of our country, I find it is absolutely insane to allow even the remotest possibility of infecting our food supply with radioactive substances or to endanger our population with genetically engineered viruses that have no cure and can be transmitted through the air.

Housing and testing such substances alone is bothersome enough to me, but to compound this issue even further is the volatility of this region geologically speaking. Given the fact that this region is near active fault lines which have the potential for high magnitude earthquakes, I wonder why such a site as Livermore would even be considered. How accurate is the hazards analysis in regards to the ramifications of high magnitude earthquakes alone? What contingency plans are present which could deal appropriately with the potential devastation if any of such substances the Lawrence Livermore Labs presently houses are leaked or dispersed into surrounding areas? Due to the fact that the US government has demonstrated that it values the secrecy of its commercial and military facilities more highly than the transparency that is needed for

effective international monitoring of compliance with the requirements of the 1972 Biological Weapons Convention, I seriously question the need for further expansion of such facilities. I was informed by Tri Valley Cares, that the initial Environmental Assessment report failed to disclose documents about the volume of pathogens the Lab plans to house.

Although the National Institute of Health requires Institutional Biosafety Committees to make minutes available to the public, I'm unsure myself how to access such information and wonder how much of the local population even knows they can access such information. Not to mention, I'm not so sure whether the public even knows what occurs at the Labs, or what substances are being tested. Perhaps the public doesn't want to know, but do we as a society wait until the uranium dust has infected and polluted our environment and babies begin to be born deformed, or for a pandemic or outbreak takes over the civilian population before such testings would come to a halt? I am already disturbed by the data disclosed by the California EPA reports which provide statistical analysis of the current rates of cancer our population has and will potentially endure based on the amount of pollution we already produce which has poisoned our air, water, and soil. Do we really want to increase the levels of toxicity we already sustain? Do we really want to create new super virus strains that have the potential to infect the human population with no hope for a cure?

It is my hope that those who work in the Defense industry, those who make their living through weapons proliferation, those who work toward creating and testing substances that are designed solely to kill, maim, and poison realize that we are merely harming ourselves and our children, and future generations of humanity... There might come a time, when the substances of this nature which are housed in labs such as at Lawrence Livermore cannot be properly stored or contained. What of future generations of humanity, what of our ability to survive when we propagate such an inheritance of poison? The impetus that the current Executive Administration has for global domination and the mechanizations of war, for furthering weapons proliferation and making a living off of war profiteering is beyond disturbing to me and I would surmise a majority of human beings upon this Earth. Proposing more nuclear and other radioactive weaponry to be built and tested even though we have enough bombs to destroy the world over many times is completely begging the question... When will our governmental departments decide enough is enough? How many research and development labs for Defense do we already have in this nation? What is the volume of substances we have at our disposal already to kill, and to poison, and to pollute? It is problematic, to say the least, that people posit that the creation of such labs is for our security, for knowing that such labs exist and continue to create more materials and

technologies only meant to kill, makes me feel much less secure.

I humbly request as a citizen of the world, as a mother and a woman on this planet, that those who make decisions every day that can affect the lives of millions upon millions of beings, to choose more wisely. That those who create proposals that allow for further development of departments whose sole business is for the industrialization of our death, be told NO we have enough thank you! That those who decide whether to move forward with plans to create more chemicals, more viruses, more toxins, re-think our strategies and our priorities as a Nation. Can't we decide to appropriate funds toward more creative endeavors that would be more beneficial to our society in general? Rather than build more facilities to house more weapons, why not utilize the funds to clean up the superfund sites rather than making them even more toxic? I propose that the Energy Department focus its funding on technologies which would be beneficial to mankind rather than harmful. Rather than manifest more weapons to bolster our Militarized Industrial Complex, rather than to create wars to support our National Utilities Industry- the Energy Department could allocate more funds toward energy efficiency, toward creating technologies that do not pollute, and toward educating the children of our community to be the scientists of tomorrow who can develop better means of producing energy. We need to deal with all the poison we've already amassed from our industrial psychosis, and we really shouldn't be producing more toxicity in superfund environments to support the manifestation of endless hostility and war. We need to shift our focus from this egregious enemy mentality, where we think that we are safer by producing more substances for our death. I'm sure you are aware that society is more prosperous in peace and that doesn't mean that jobs are lost in your respective departments, but rather, the roles would be shifted to something more productive.. It is time that we move away from this collective suicide and allow for scientists to have the opportunity to develop means to utilize energy that is safer not only for the environment, but also safer for the future of mankind. The state of foreign affairs in its current manifestation spells certain doom for us all and we should do all we can as human beings regardless of our jobs or roles in government, in departments such as energy or defense, to promote things that truly make us all safe. Let us create energy systems that wouldn't require our going to other parts of the world to plunder resources, let us truly tackle the present societal system of fuel consumption, and let us heal the ecosystems we have already burdened with endless pollution. I hope all who've read my letter consider this issue more deeply. For bio-weaponry and radioactive substances pose a great threat to us all and the fact that my government creates this a few miles away from where I reside, feels much more threatening to me than any random terrorist

event. Please consider the ramifications of creating more weaponry and testing in California, for the decision could weigh heavily on generations to come... Thank you for your time and for reading my letter.

Sincerely,

Nicole Lucchesi

Concerned Citizens for Nuclear Safety
107 Cienega Street
Santa Fe, NM 87501
(505) 986-1973

May 10, 2007

By email to: samuel.brinker@oak.doe.gov

Samuel Brinker
National Environmental Policy Act Document Manager
U.S. Department of Energy
National Nuclear Security Administration Livermore Site Office, M/S L-293,
P.O. Box 808
Livermore, CA 94551-0808

Re: CCNS Comments to the Draft Revised Environmental Assessment for the
Proposed Construction and Operation of a Biosafety Level 3 Facility at
Lawrence Livermore National Laboratory, Livermore, California
DOE/EA-1442R

Dear Mr. Brinker,

Concerned Citizens for Nuclear Safety (CCNS), a Santa Fe based research and advocacy non-governmental organization, opposes the opening of a bio-warfare research facility at the Lawrence Livermore National Laboratory (LLNL) main site. The proposed facility poses a great proliferation risk. Transparency is necessary for effective international monitoring of compliance with the requirements of the 1972 Biological Weapons Convention (BWC). Locating biological warfare agent research at a classified nuclear weapons laboratory, such as LLNL, could lead other countries to follow suit causing nearly insurmountable verification problems. If bio-warfare agent research is to be conducted, it must be done only as needed, and only under the auspices of civilian science centers with the greatest care possible taken to protect environmental and public health.

In the alternative, CCNS submits the following comments about the draft Revised Environmental Assessment (EA) for the Bio Safety Level-3 (BSL-3) facility proposed for LLNL, which we find to be inadequate and incomplete.

Need for a full EIS: The Department of Energy (DOE) and National Nuclear Security Administration (NNSA) are preparing a full Environmental Impact

Statement (EIS) for the proposed BSL-3 lab at Los Alamos National Laboratory (LANL). The same must be done for the proposed BSL-3 facility at LLNL.

Insufficient time to comment: DOE/NNSA has not given the public adequate time or opportunity to respond to the revised EA. The 30-day written comment period is too short for meaningful public involvement and must be extended for at least 45 additional days. In addition, DOE/NNSA must hold public comment hearings in the impacted communities during the extended public comment period. Public comment hearings are necessary in order to provide diverse and ample opportunities for meaningful public participation.

Use of an interim guidance: In December 2006, DOE determined that it would require analysis of terrorist risk in all environmental assessments and issued an interim guidance while preparing the final guidance for how such analysis must be preformed. The analysis in the EA is the first analysis of its kind and therefore sets a precedent for future terrorist risk analyses. Living in close proximities to two DOE nuclear weapons facilities, LANL and Sandia National Laboratories, we request that this analysis set a strong precedent for how DOE/NNSA will address terrorist risks for all facilities within the DOE Complex.

In addition, analysis of terrorist risk at a BSL-3 facility is far too significant to be performed using an interim guidance, which does not include the full requirements and which may be changed in the final guidance. DOE/NNSA must withdraw this revised EA and release a second revision of the EA for public review following the finalized guidance.

The December 2006 DOE Memorandum, "Need to Consider Intentional Acts in NEPA Documents" states that the final guidance will address "the appropriate level of detail for analysis, consistent with the 'sliding-scale' principle (e.g., a more detailed threat analysis is appropriate for a special nuclear material management facility, or for a non-nuclear facility with a significant amount of material at risk; a less detailed analysis may be adequate for a proposed office complex)."

This is of particular concern to the public, because the current EA does not provide sufficient detail for the level of risk. The scenarios proposed are briefly sketched without sufficient detail to either indicate that analysis was actually done or allow the public to make meaningful comments about the analysis.

DOE/NNSA must revise the EA to include greater detail and then allow the public to submit comments. In the alternative DOE/NNSA must withdraw the draft EA until it can provide justification for the less detailed analysis.

Reliance on probability of attack to dismiss impacts: The EA describes its approach to the terrorist analysis as “NNSA has adopted an approach based on that which is used in designing security systems and protective strategies, where one begins with the assumption that a terrorist act will occur, regardless of the actual probability of such an act.” (58)

In discussion of the possibility that an insider should steal some of the agents, the EA states, “Some scenarios could have greater consequences (e.g., use of larger quantities), and some of which would have lesser consequences (e.g., agent dilution and partial or complete destruction upon release to air, water, or food environments as the transport mechanism). **Taken to extremes, one can even postulate scenarios with catastrophic implications.**” (64) Emphasis added.

However, the EA does not thoroughly analyze the postulated scenario with catastrophic implications. Instead, it dismisses the impacts from theft of pathogenic agents due to assumed improbability that such theft would occur:

“2) because pathogenic agents are available in nature and other, less secure locations, operation of the LLNL BSL-3 facility would not make pathogenic agents more readily available to an outside terrorist, or increase the likelihood of an attack by an outside terrorist; and
3) the theft of pathogenic materials by an insider from any bio research facility could have very serious consequences; this scenario is not expected to occur at LLNL due to human reliability programs, security procedures, and management controls at the Facility.” (V)

The dismissal of possible consequences due to the low probability of occurrence is contrary to NNSA’s own stated approach to this analysis. Given the possible “catastrophic implications,” NNSA must perform a detailed analysis of the impact should the agents be released and provide it for public comment and review.

Thank you for considering our comments. Should you have any questions, please contact us at your earliest convenience.

Sincerely,

Joni Arends
Executive Director
jarends@nuclearactive.org

Kalliroi Matsakis
Media Network Director
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Sadaf Cameron
Public Outreach and Education Director
scameron@nuclearactive.org



NATURAL RESOURCES DEFENSE COUNCIL

Matthew McKinzie, Ph.D.
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May 11, 2007

Samuel Brinker, National Environmental Policy Act Document Manager
U.S. Department of Energy
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Livermore Site Office, M/S L-293, P.O. Box 808
Livermore, CA 94551-0808
email: samuel.brinker@oak.doe.gov
fax: 925-423-5650

Subject: NRDC Comments on the Draft Revised Environmental Assessment for the Proposed Construction and Operation of a Biosafety Level 3 Facility at Lawrence Livermore National Laboratory (Revised March 2007)

NRDC has reviewed the Biosafety Level-3 Draft Environmental Assessment (Revised March 2007) and found it inadequate, particularly in response to the Ninth Circuit ruling which required the U.S. Department of Energy to review the threat to the LLNL Biosafety Level 3 facility from terrorists and the potential environmental effects that might derive from various terrorist acts against the facility.

The LLNL BSL-3 Draft EA states:

Depending on the time of day and the type of research underway, a loss of containment could result in a release of pathogenic materials. It is probable that the organic biological material would be destroyed by any resulting fire... BSL-3 Draft EA Rev March 07, pg. 59

Risk Group 2 and Risk Group 3 agents proposed for use in the facility cause human diseases for which preventive or therapeutic interventions may be available. Nationally, health care providers have been trained to recognize symptoms of exposures to Risk Group 2 agents (such as anthrax) and Risk Group 3 agents. Local hospitals and health care providers in the Livermore area have been briefed by LLNL medical staff. BSL-3 Draft EA Rev March 07, pg. 60

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NRDC Comment: The BSL-3 Draft EA (Rev. March '07) inadequately addresses the requirements of the Ninth Circuit Court to analyze the threat of potential terrorist activities. A reasonable analysis of the consequences of a terrorist act at the proposed LLNL BSL-3 facility would: 1) quantitatively define the source term, with respect to form, type and quantity of agent(s) and location(s) in the facility; 2) specify a release fraction or range of release fractions corresponding to the terrorist attack scenario (the BSL-3 Draft EA Rev. March '07 simply states that this number is non-zero); calculate via plume modeling the likely dispersal of agent over time under different weather scenarios; assess the number of infections or range of infections based on the best available residential and daytime population data; and address the capabilities of local and regional first responders, medical care and quantities of vaccines or antibiotics. Such analyses are now being performed on a regular basis by the U.S. government, reflecting an increased investment in modeling and simulation capabilities and training for consequences of Weapons of Mass Destruction (WMD) attacks since the events of September 11, 2001. The Department of Energy and Livermore Labs have resources and expertise to provide quantitative modeling results [for example, see the article "On the Leading Edge of Atmospheric Predictions" in the March 2007 edition of LLNL's *Science and Technology Review*] to understand the most extreme and most likely impacts from a terrorist scenario, but have not presented such results despite the Ninth Circuit's requirement.

The LLNL BSL-3 Draft EA states:

The most serious ultimate potential impacts of a terrorist act using material stolen from the LLNL BSL-3 facility would be similar to those that could occur should a terrorist collect the same organisms from infected livestock, wild animals or the locations in the environment where they occur naturally. Because these and other pathogenic organisms to be studied in the proposed BSL-3 facility are typically collected from environmental samples in the first place, they are just as accessible to a technically-competent terrorist (or group) as to any legitimate researcher. As such, the proposed action does not measurably add to the avenues already available to a terrorist for obtaining pathogenic materials or measurably increase the likelihood of this type of malicious act. BSL-3 Draft EA Rev March 07, pg. 63

NRDC Comment: To date Livermore Labs has not excluded the possibility that weaponized anthrax or weaponized forms of other biological agents from work at the proposed BSL-3 facility, and it is likely that such modified agents will be stored at the BSL-3 facility in order to meet its mission "to reduce the overall probability and consequence of a bio-terrorist act." In addition, the LLNL BSL-3 facility would represent a collection of different kinds of agents, so the comparison to gathering discrete biological agents from distributed sources is inappropriate. Furthermore the quantity of biological weapon agents at the LLNL BSL-3 facility could reasonable be expected to supersede quantities readily collected from animal or plant sources in the field.

The LLNL BSL-3 Draft EA states:

"For malevolent acts, probability data is generally unavailable, since in addition to technical feasibility, one would also need to devise a means for assessing and quantifying as a weighting factor the willful intent of a purpose-driven individual or group. Such factors are

not subject to estimation, and are likely to vary over time.” BSL-3 Draft EA Rev March 07, pg. 59

NRDC Comment: Here the Draft EA unreasonably dismisses current approaches to terror threat assessment, as, in a simple example, the United States government national threat level is now generally determined to be “Elevated,” or yellow-colored in general, and the U.S. threat level is now “High,” or orange-colored, for all domestic and international flights. An “Elevated” threat level is defined by the U.S. Department of Homeland Security (DHS) as one in which there is a significant risk of terrorist attacks. The Homeland Security Advisory System was introduced on March 12, 2002 as “Elevated,” and the threat level has been altered 12 times to date, never falling below “Elevated”.

In addition, we would like to point out the following general issues with respect to the siting of the BSL-3 facility at the Livermore main site and the inadequacy of the revised Draft EA:

- Advanced biodefense research (i.e., with bio-warfare agents like live anthrax and plague) should not be collocated with nuclear weapons research, thereby setting a precedent which complicates monitoring and enforcement of the Biological Weapons Convention, the international treaty banning bio-weapons.
- The revised Environmental Assessment states that new research by the USGS has determined there is a 62% chance that one or more magnitude 6.7 earthquakes will occur in the area within the next 30 years. The BSL-3, a portable building, should not be operated in a seismically active area.
- The Department of Energy (DOE) should hold a public hearing so that stakeholders can learn more about this plan and provide further comments. So far, DOE has failed to hold public hearings on this important matter.
- The 30-day written comment period (which ends May 11, 2007) is too short. Area residents and other interested members of the public need more time to learn of the comment period, gather information and respond.

Livermore Lab sits within a 50-mile radius of seven million people. This highly populated area is not an appropriate place to conduct experiments with some of the deadliest agents known. With respect to this population, the written comment deadline for the BSL-3 Draft EA should be extended for a minimum of one additional month (to June 11) and a public hearing (see above) should occur within the extended public comment deadline.

Sincerely,



Matthew McKinzie, Ph.D.

-----Original Message-----

From: penny mcmullen [<mailto:pmsl@cybermesa.com>]

Sent: Friday, May 11, 2007 4:25 PM

To: Brinker, Samuel

Subject: LLNL BSL-3 comments

Loretto Community
113 Camino Santiago
Santa Fe, NM 87501
505-983-1251

May 10, 2007

By email to: samuel.brinker@oak.doe.gov

Samuel Brinker
National Environmental Policy Act Document Manager U.S. Department of
Energy National Nuclear Security Administration Livermore Site Office,
M/S L-293, P.O. Box 808 Livermore, CA 94551-0808

Re: Loretto Comments to the Draft Revised Environmental Assessment for
the Proposed Construction and Operation of a Biosafety Level 3
Facility at Lawrence Livermore National Laboratory, Livermore,
California DOE/EA-1442R

Dear Mr. Brinker,

The Sisters of Loretto and Loretto Community strongly oppose a
bio-warfare research facility (BSL-3) at the Lawrence Livermore National
Lab (LLNL) for the following reasons:

The BSL-3 research is on live biological agents that could be used to
make bio-weapons. The stated purpose of this research is to learn how
to counteract a serious outbreak in the event of a bio-weapons attack on
our nation. Just as we wrote in our comments regarding the BSL-3
facility proposed for the Los Alamos National Lab (LANL), this kind of
research should not be conducted at a nuclear weapons research lab.
Since this research is basically dealing with diseases that would be the
result of such an attack, it should be done at a Center for Disease
Control facility or other civilian science center. If the BSL-3
research is conducted at a weapons research facility, it would generate
suspicion that the Dept. of Energy's (DOE) real intention is to
eventually develop bio-weapons to use against other nations and could
thus lead to proliferation of bio-weapons development around the world.

When DOE presented their EA for a BSL-3 Lab at LANL, the Loretto

Community along with many other commentators stated that DOE should be required to prepare a full Environmental Impact Statement (EIS). The DOE is now preparing an EIS for the BSL-3 at LANL. Just as with LANL, an EA is insufficient for LLNL and the DOE and the National Nuclear Security Administration (NNSA) needs to prepare a full EIS for LLNL.

A 30-day comment period is unfairly short. Most area residents and other interested citizens who would have liked to submit a comment have not yet been notified about the comment period because it has not been widely publicized. So the comment period needs to be extended for as long as is needed to adequately publicize the comment period and allow citizens to have meaningful participation in the process, as mandated by law.

The Livermore Lab is in a seismically active area and therefore certainly not suitable for a BSL-3 facility. Some studies predict a level 10 earthquake, the most violent quake on the scale of 1-10. The revised EA does not address how the BSL-3 will sustain such an earthquake, especially if the BSL-3 is to be in a portable building.

The DOE is now required to conduct an analysis of all possible impacts of a terrorist attack. Instead of doing this analysis, the EA dismisses the impacts because the DOE assumes that terrorists would not want to steal live bio-warfare agents. The EA also claims that most bio-warfare agents would be destroyed in a terrorist attack and therefore would not be released into the environment. The EA does not justify this assumption either. The DOE/NNSA needs to conduct a thorough study of all possible effects of all possible scenarios, not just state unsubstantiated assumptions, as well as provide detailed plans for dealing with an accident and with a terrorist intrusion or attack.

The EA does not sufficiently discuss the risks of transporting live agents. The ES states that accidents are reported, and that "Accidents due to transportation of microorganisms are not expected to increase" and that the addition of samples shipped to and from the BSL-3 facility through federal or by commercial or private courier "would not be expected to change the overall incidence of risk of transportation accidents." The EA does not explain why increased transportation of micro-organisms would not logically indicate a probable increase in accidents.

In summary, this draft revised EA is inadequate and incomplete, and DOE/NNSA needs to withdraw this EA and prepare a full EIS with sufficient notification and public comment period for citizens to adequately address the EIS.

Thank you for considering our comments. Please confirm that you received these comments and that they will be included in the record.

Respectfully,

Penelope McMullen, SL
NM Justice and Peace Coordinator
Loretto Community
113 Camino Santiago
Santa Fe, NM 87501

505-983-1251
pmsl@cybermesa.com

From: Loulena Miles [<mailto:loulena@trivalleycares.org>]

Sent: Monday, May 14, 2007 3:21 PM

To: Brinker, Samuel

Cc: Yuan-Soo Hoo, Camille; Limage, Simon; mayor@ci.livermore.ca.us; ljdietrich@ci.livermore.ca.us; mrleider@ci.livermore.ca.us; jpmarchand@ci.livermore.ca.us; reitter@ci.livermore.ca.us; Richard_Harper@feinstein.senate.gov

Subject: Urgent Need for Extension of Public Comment Period for BSL-3 operations at Livermore Lab

May 14, 2007

Samuel Brinker
National Environmental Policy Act Document Manager
U.S. Department of Energy
National Nuclear Security Administration
Livermore Site Office, M/S L-293
P.O. Box 808
Livermore, CA 94551-0808

RE: Urgent Need for Extension of Public Comment Period for BSL-3 operations at Livermore Lab

Dear Mr. Brinker:

This letter is in regard to the Department of Energy's (DOE) proposal to operate a Biosafety Level 3 laboratory at Livermore Lab. As you are aware, the potential environmental impacts of operating this facility have been presented by the DOE in a Draft Environmental Assessment that was open for public comment from April 11, 2007 to May 11, 2007.

We are alarmed to find that you were out of the office on the final day of the comment period – May 11th, and that your fax machine did not accept faxes on that day. It is evident from the Department of Energy press release that you are the person responsible for taking public comments on this document. Neither you, nor your staff, responded to our many calls and emails alerting you that the fax machine was not accepting comments. We now learn that Livermore Lab employees were moving furniture and may have disconnected the fax machine on the final day of the public comment period.

This is at best a falling down on the job of the DOE, and at worst, an intentional obstruction of the public comment period under the National Environmental Policy Act. Our concerns about the Department's disinterest in meaningful public comment is only buttressed by the Department's denial of repeated requests by the public to hold a hearing where local residents could ask questions and apprise themselves of the facts around this controversial bio-lab.

The public comment process is the heart of the National Environmental Policy Act (NEPA). NEPA requires federal agencies to take a hard look at the potential environmental impacts of

projects that may have a significant impact on the environment. This Environmental Assessment (EA) is a critical document for demonstrating whether the DOE has given sufficient thought to ensuring the safety of the Livermore Valley and surrounding areas. Specifically, this EA has been mandated by court order to analyze the impacts of a terrorist attack. Also contemplated in this document is a catastrophic accident resulting in airborne release of bioagents. The lab will be permitted to handle as much as 100 Liters of bioagents; one teaspoon of some of the permitted agents (like live anthrax) is enough to cause thousands of deaths if released into the air from the facility.

We received a number of contacts from frustrated community members who could not send their comments in by fax. We are even more concerned about the public members who did not contact us and were likely not even aware that their faxes did not go through.

It is our view that the Department has not given due consideration to the importance of public comments since this process began in 2002. Neither the original EA in 2002, nor the revised EA released in April of 2007, included basic contact information for where to send public comments or when – even after we alerted you to this deficiency. And, as mentioned, if a member of the public obtained the fax number for sending comments from the DOE's press release during the most recent comment period, that fax machine was non-operational.

Because of your absence on the most important day of the comment period and a faulty fax machine, it is highly likely that not all members of the public seeking to comment on this document were given an opportunity to do so.

The only fair remedy to this situation is that you re-advertise the public comment period for 30 additional days, hold a public hearing and re-release the document with comment period deadlines and contact information printed in the text of the document itself.

Sincerely,

Loulana Miles
Staff Attorney

Marylia Kelley
Executive Director

cc Livermore Site Office Manager, Camille Yuan-Soo Hoo
City Council of Livermore
Senator Barbara Boxer
Senator Dianne Feinstein
Representative Ellen Tauscher
Representative Jerry McNerney

--

Loulana Miles
Staff Attorney
Tri-Valley CAREs

-Communities Against a Radioactive Environment-
2582 Old First Street
Livermore, CA 94551

(P) (925) 443-7148
(F) (925) 443-0177
www.trivalleycares.org

From: RedMiles@aol.com [<mailto:RedMiles@aol.com>]
Sent: Thursday, May 10, 2007 4:22 PM
To: Brinker, Samuel
Subject: Bio-Defense

Mr. Brinker:

As a life time citizen of Contra Costa County and Alameda County, I have seen this area grow and change. This is definitely not the place to store or test bio warfare agents or any type of virus for any reason. The Lawrence Livermore Lab is too close to a huge population and therefore, it is foolish to even contemplate the risk!!!

Thank you,
Yvonne Miles
2715 Almondridge Dr
Antioch,CA. 94509

From: Martha Priebat [<mailto:mammadoc@earthlink.net>]
Sent: Tuesday, May 08, 2007 9:31 PM
To: Brinker, Samuel
Subject: Opposition to BSL3 Lab in Livermore

I am strongly opposed to construction and/or operation of a bio-warfare (BSL-3) laboratory in Livermore on the grounds of Lawrence Livermore Laboratory. First I must tell you that I have grandchildren growing up within a mile of the plutonium building, and therefore also within a mile of the BSL3 Lab. I am afraid of the effect on those children and all the children in Livermore should some small amount of anthrax, plague or another dangerous pathogen accidentally escaping from the BSL3 building. And accidents do happen, as we saw recently when the I580 connector ramp burned. Yes, accidents just will happen.

In addition, LLNL is situated between two active faults, one of which caused damage at the Laboratory about 25 years ago. Earthquakes also happen, whether we like it or not. This portable lab is near the buildings where earthquake damage occurred. What will happen to a portable building in an earthquake? In addition, LLNL is situated within the city limits of Livermore, with a population of approximately 60,000 people live, and within a 50-mile radius where 7 million people live. All this seems to me to be a dandy target for terrorists. And terrorists also happen.

I could continue with this list of my concerns about this thoughtless and near-sighted plan, but my blood pressure is rising as I write.

DO NOT OPERATE this bio-warfare facility in Livermore.

Yours truly
Martha Priebat

From: Megan Radmore [mailto:megan_renee79@yahoo.com]

Sent: Tuesday, April 24, 2007 4:11 PM

To: Brinker, Samuel

Subject: Urgent!

I ABSOLUTELY oppose the opening of the bio-warfare research facility in Livermore, CA. The nearby populace is 7 MILLION! Million with an M. Not to mention this location sits near active fault lines. A public hearing should be held IMMEDIATELY! A comment period until 11 May is not long enough, most residents have no idea about these plans, and THEY SHOULD as the facility will be testing the most dangerous agents known to man!!!

Megan R Radmore

-----Original Message-----

From: ann [<mailto:ann@trivalleycares.org>]

Sent: Monday, April 23, 2007 4:33 PM

To: Brinker, Samuel

Subject: Comment: Bio-Warfare Agent Research at Livermore Lab

Re: Comment period Bio-Warfare Agent Research at Livermore Lab

Dear Mr. Brinker,

Just as war is no longer a viable international discourse, developing dangerous bio-warfare agents isn't either. The human is still primitive enough, and wary of others different than ourselves, that these dangerous escalations, in the end, will destroy us all, by bankrupting us as taxpayers or just killing us with bacteria, radioactivity or toxic contamination.

I know for a fact that the public is told there is no danger with biowarfare agent research and historical fact tells me accidents, spills, human error, mishap and cover-up are a decades-old, documented fact at Lawrence Livermore National Laboratory when they were given plutonium. Can any honest person believe human life will be without these elements? Yet, we play more and more dangerous games.

This country created the devastating A- and H-bombs. Dwight Eisenhower, due to his lack of understanding of the real dangers, wanted to create something good from this destruction so he gave the world nuclear power plants. If a country has one, they can extract plutonium, so who spread this problem around the world. The U.S. did. What gift hasn't gone wrong in the wrong hands? What country hasn't sought to equal the weapons, and now bio-agents, we develop?

Now, here comes the biowarfare boom and in Livermore alone the biowarfare research agent facility will house 25,000 different samples of pathogens in California, a fertile agricultural area that feeds the entire nation, around seven million of residents or more, near an earthquake fault, inside a super secret nuclear weapons lab. Does anyone at the Department of Energy think about building something for humanity instead playing on the edge of destroying it?

I oppose this BSL-3 lab being housed in a 1,500 foot prefabricated building. I oppose this because the public is deprived of a public hearing. I oppose this lab because those working at this facility aren't even informed of the dangers posed to them and our government plays willie-nille with their lives trying to flummox them by holding back the truth, to lull them into a feeling of safety. I oppose this

lab because the Environmental Assessment failed to disclose many facts so the public and workers are operating on falsehoods.

Shame, for not working to lift the world up.

Ann Seitz
22103 Main Street
Hayward, CA 94541
510-538-5285

From: Virginia Sharkey [<mailto:v.sharkey@sbcglobal.net>]
Sent: Tuesday, May 08, 2007 10:32 PM
To: Brinker, Samuel
Subject: Proposed BSL3 Livermore

Samuel Brinker
W.S.D.O.E.N.S.A.

Creating a BSL3 in a highly populated area could be a risk to the whole area, including Sonoma County, my home.

The DOE only provided an Environmental Assessment in its proposal. The EA was challenged in court where a revision was ordered. Even the revision is inadequate.

Potential terrorists risks were not thoroughly considered.

Before creating a BSL3 in Livermore a public meeting is in order so citizens can understand the implications and comment on them. Then a full Environmental Impact Study is needed to ensure the safety for any potential danger.

Virginia Sharkey
157B North Star Drive
Santa Rosa, CA 95407

Jacob Smith

14 Allen St.

Amherst, MA 01002

May 10, 2007

By email to: samuel.brinker@oak.doe.gov

Samuel Brinker

National Environmental Policy Act Document Manager

U.S. Department of Energy

National Nuclear Security Administration Livermore Site Office, M/S L-293,

P.O. Box 808

Livermore, CA 94551-0808

Re: The Draft Revised Environmental Assessment for the Proposed Construction and Operation of a Biosafety Level 3 Facility at Lawrence Livermore National Laboratory, Livermore, California DOE/EA-1442R

Dear Mr. Brinker,

I opposes the opening of a bio-warfare research facility at the Lawrence Livermore National Laboratory (LLNL) main site. The proposed facility poses a great proliferation risk. Transparency is necessary for effective international monitoring of compliance with the requirements of the 1972 Biological Weapons Convention (BWC). Locating biological warfare agent research at a classified nuclear weapons laboratory, such as LLNL, could lead other countries to follow suit causing nearly insurmountable verification problems.

If bio-warfare agent research is to be conducted, it must be done only as needed. In any research program there is always the potential for discoveries to occur that the researchers did not intend to make. I bring in particular to your attention a study done by Australian researches in which a strain of a pathogen was developed that was significantly more dangerous rather than less dangerous as expected (R. J. Jackson et al., "Expression of Mouse Interleukin-4 by a Recombinant Ectromelia Virus Suppresses Cytolytic Lymphocyte Responses and Overcomes Genetic Resistance to Mousepox," *Journal of Virology*; vol. 75 (2001), pp. 1205-10). The potential impact of a similar discovery on wild populations of animal species used in research must be assessed and

weighed against predicted gains of the research. Bio-warfare agent research must be conducted only under the auspices of civilian science centers with the greatest care possible taken to protect environmental and public health.

In the alternative, I submit the following comments about the draft Revised Environmental Assessment (EA) for the Bio Safety Level-3 (BSL-3) facility proposed for LLNL, which we find to be inadequate and incomplete.

Need for a full EIS: The Department of Energy (DOE) and National Nuclear Security Administration (NNSA) are preparing a full Environmental Impact Statement (EIS) for the proposed BSL-3 lab at Los Alamos National Laboratory (LANL). The same must be done for the proposed BSL-3 facility at LLNL.

Insufficient time to comment: DOE/NNSA has not given the public adequate time or opportunity to respond to the revised EA. The 30-day written comment period is too short for meaningful public involvement and must be extended for at least 45 additional days. In addition, DOE/NNSA must hold public comment hearings in the impacted communities during the extended public comment period. Public comment hearings are necessary in order to provide diverse and ample opportunities for meaningful public participation.

Use of an interim guidance: In December 2006, DOE determined that it would require analysis of terrorist risk in all environmental assessments and issued an interim guidance while preparing the final guidance for how such analysis must be performed. The analysis in the EA is the first analysis of its kind and therefore sets a precedent for future terrorist risk analyses.

In addition, analysis of terrorist risk at a BSL-3 facility is far too significant to be performed using an interim guidance, which does not include the full requirements and which may be changed in the final guidance. DOE/NNSA must withdraw this revised EA and release a second revision of the EA for public review following the finalized guidance.

The December 2006 DOE Memorandum, "Need to Consider Intentional Acts in NEPA Documents" states that the final guidance will address "the appropriate level of detail for analysis, consistent with the 'sliding-scale' principle (e.g., a more detailed threat analysis is appropriate for a special nuclear material management facility, or for a non-nuclear facility with a significant amount of material at risk; a less detailed analysis may be adequate for a proposed office complex)."

This is of particular concern to the public, because the current EA does not provide sufficient detail for the level of risk. The scenarios proposed are briefly sketched without sufficient detail to either indicate that analysis was actually done or allow the public to make meaningful comments about the analysis.

DOE/NNSA must revise the EA to include greater detail and then allow the public to submit comments. In the alternative DOE/NNSA must withdraw the draft EA until it can provide justification for the less detailed analysis.

Reliance on probability of attack to dismiss impacts: The EA describes its approach to the terrorist analysis as “NNSA has adopted an approach based on that which is used in designing security systems and protective strategies, where one begins with the assumption that a terrorist act will occur, regardless of the actual probability of such an act.” (58)

In discussion of the possibility that an insider should steal some of the agents, the EA states, “Some scenarios could have greater consequences (e.g., use of larger quantities), and some of which would have lesser consequences (e.g., agent dilution and partial or complete destruction upon release to air, water, or food environments as the transport mechanism). **Taken to extremes, one can even postulate scenarios with catastrophic implications.**” (64) Emphasis added.

However, the EA does not thoroughly analyze the postulated scenario with catastrophic implications. Instead, it dismisses the impacts from theft of pathogenic agents due to assumed improbability that such theft would occur:

“2) because pathogenic agents are available in nature and other, less secure locations, operation of the LLNL BSL-3 facility would not make pathogenic agents more readily available to an outside terrorist, or increase the likelihood of an attack by an outside terrorist; and

3) the theft of pathogenic materials by an insider from any bio research facility could have very serious consequences; this scenario is not expected to occur at LLNL due to human reliability programs, security procedures, and management controls at the Facility.” (V)

The dismissal of possible consequences due to the low probability of occurrence is contrary to NNSA’s own stated approach to this analysis. Given the possible “catastrophic implications,” NNSA must perform a detailed analysis of the impact should the agents be released and provide it for public comment and review.

Thank you for considering my comments. Should you have any questions, please contact me at your earliest convenience.

Sincerely,
Jacob Smith

PM STRAUSS & ASSOCIATES
Energy and Environmental Consulting

May 11, 2007

To: Samuel Brinker
National Environmental Policy Act Document Manager
U.S. Department of Energy
National Nuclear Security Administration
Livermore Site Office, M/S L-293
P.O. Box 808
Livermore, CA 94551-0808

samuel.brinker@oak.doe.gov
Fax: 925/423-5650

Comment on the Revised Environmental Assessment for the Livermore Lab BSL-3

I have been monitoring the cleanup of Lawrence Livermore National Laboratory (LLNL), which had been named to the National Priorities List (NPL) under CERCLA. I conduct research on cleanup practices at the site, make recommendations about remediation, comment on proposals by LLNL, and generally review and monitor cleanup activities. This has acquainted me with a number of releases to the environment that resulted in LLNL being named to the NPL. In 2000, I also conducted research for TVC on environmental releases of plutonium from LLNL. This research culminated in a 2001 report entitled Playing With Poison: Plutonium Use at Lawrence Livermore National Laboratory. This comment is divided into two parts: **General and Detailed**

General Comments

The proposed BSL-3 facility would allow LLNL to experiment with a broad range of biological agents including anthrax, bubonic plague, botulism, and genetically modified lethal bio-warfare agents. This new program, if inadequately managed, could seriously endanger workers and the community. Therefore, past management performance should be carefully evaluated before this project is undertaken.

Constructing and operating a BSL-3 facility also represents a new direction and program for DOE and LLNL. This new direction could have serious health and environmental consequences. This new direction is not within the existing "culture" of the Lab and the EA should address the ongoing training and knowledge (or lack thereof) that will be necessary to operate it safely and securely.

This new program will require management and leadership that should be evaluated in an environmental review. Based on my review of the Environmental Assessment conducted by the Department of Energy, all relevant information, including past management patterns, has not

been disclosed or discussed in the EA. This information could have a significant effect on the environment and is relevant in the decision to site a BSL-3 facility at LLNL.

Further, in the description of the site in the EA and elsewhere in the document, there is virtually no discussion of the fact that the site is being cleaned up under CERCLA, or the fact that some of the safety features for the BSL-3 facility rely on the same assumptions (often faulty) used to prevent the release of plutonium to the environment. Both of these points deserve a thorough consideration in the Environmental Assessment and in a much needed full Environmental Impact Statement. My detailed comment will provide more information as a starting point for further analysis.

Detailed Comment

The potential failure of the HEPA filters is of serious concern. The revised EA assumes that virtually all biological particles will be captured by the HEPA filters. DOE should explain how it plans to prevent particles not captured from being released to the environment. HEPA filters have a long and infamous history at the Lab, where they are used in the plutonium facility and other buildings. Facilities using plutonium send exhaust through at least two sets of HEPA filters before exhaust air is emitted to the environment. In 1980, plutonium was detected leaving the stacks. HEPA filters are employed to capture fine particles in the exhaust of gloveboxes, from room ventilation systems and from air stacks. They are the last barriers of protection against the release of particulate radioactivity to the environment.

Failures or potential failures of HEPA filters have been documented by numerous inspections indicating them to be in poor shape and not protective in case of an accident. Additionally, in 1999 LLNL acknowledged that there were no regulations regarding the service life of HEPA filters. In 1997, there were three releases of radioactive material associated with HEPA filters. During a period spanning two decades, there were numerous reports of faulty HEPA filters and the use of old HEPA filters that could have led to releases. In 1999, Argonne National Laboratory recommended that LLNL replace all HEPA filters at B-332.

Chemical contamination should be fully addressed. CERCLA was enacted in 1980 and is commonly referred to as the Superfund. Superfund was amended in 1986 by the Superfund Amendments and Reauthorization Act (SARA). Actions taken under CERCLA (Superfund) deal with sites where there have been past releases of hazardous substances and pose a substantial threat to human health. Sites listed and cleaned up under Superfund are named to the National Priorities List (NPL). This list is composed of the most hazardous sites in the U.S., and comes under the rules and regulations of federal environmental jurisdiction.

Both of the sites operated by LLNL are listed on the NPL. In 1987, the LLNL Main Site was named to the Superfund NPL. The basis for listing was the presence of volatile organic compounds (VOCs), such as trichloroethene, trichloroethane, carbon tetrachloride, Freon, chromium and tritium (radioactive hydrogen) in the groundwater in 1982, in proximity to Livermore drinking water supplies. These compounds have been released to groundwater in concentrations above the maximum contaminant level (MCL) established by EPA or the State of California. Many of these substances are known or potential cancer-causing agents.

Contamination at the Main Site raise questions about management's capability to handle hazardous materials. The major causes of release of non-radioactive wastes into the environment at LLNL have been through the improper storage or treatment, accidents, and operational releases. These releases could have been foreseen.

For example, during the early 1960s through the early 1980's, improper storage, treatment and disposal of wastes in earthen pits and evaporation pads led to soil and groundwater contamination. Livermore's sewer system, as diagramed in the Dreicer Report (1985), runs contiguous to areas of contamination. An underground tank ruptured, leading to the release of thousands of gallons of gasoline. Another underground tank leak at LLNL permitted soil and groundwater to become contaminated with Tritium.

A number of reports have been published regarding the extent of contamination at Livermore Lab, including the 1985 report by Dreicer, the 1990 Remedial Investigation (RI), the 1993 Record of Decision and numerous other documents that make up the LLNL Superfund Record. Recently, during the construction of a large laser, over 100 PCB-laden capacitors were found buried at the site, with no demarcation. They and surrounding soil were removed. This was close to an area called the Taxi Strip area, where an unknown quantity of non-radioactive and radioactive wastes were disposed of in earthen pits and evaporation ponds. The resulting contaminated soil and groundwater at the Main Site is still being cleaned up, costing tens of millions of dollars.

Radiological contamination should be fully addressed. Tritium, plutonium, uranium and other radioactive materials were used at LLNL in designing nuclear weapons. Gaseous tritium was released into the air at a monitored rate of 3,978 curies in 1989. Use of tritium has decreased since then. Sometimes, tritium has been accidentally released to groundwater, the air and to the soil. Many of the radioactive releases were due to poor management practices or accidents. For example, the 1991 DOE Task Group on Operation of DOE Tritium Facilities reported the following examples of failures at LLNL:

- 126 curies released on 12/15/86 due to failed pump.
- 198 curies released 4/14/87 due to equipment and operator error.
- 145 curies released 1/19/88 due to unknown cause or monitor malfunction.
- 329 curies release 8/22/89 due to improper pressure relief of container.
- 144 curies released 10/31/89 due to mistaken belief that palladium bed contained on deuterium and hydrogen.
- Unknown quantity of tritium released to soil on 12/24/90 due to unanticipated freezing weather that cracked a pipe leading to an underground vessel.

Plutonium has also been found in soil at the Main Site above "background" levels, and at one location, tainted soil had to be removed. Plutonium is also found in the soil in the surrounding neighborhood above background levels. The plutonium contamination is the result of releases by LLNL to the environment. These releases could have come from the ventilation system, poor storage and treatment practices, buildup in the sewer system, and releases to the City's sewage treatment system. LLNL's theory is that there was a build-up in the sewer lines and during maintenance a large release occurred to the sewage treatment plant. The tainted sewage was processed. The sludge was dried and given to City residents for free as a soil amendment. As I

understand it, the State and County Health Department are still investigating the extent of plutonium contamination in the City Livermore.

In 2000, I undertook a detailed look at the historical use of plutonium at LLNL. Plutonium is extremely hazardous, and can induce cancer in nearly every tissue or organ of the human body. The severity of the radiation dose depends primarily on the quantity of radiation taken into the body and on the route by which it enters the body.

Plutonium 239 (Pu239) is the main component of a nuclear warhead. It has a half-life of 24,000 years, longer than recorded history. In order to approximate the hazardous life of a radionuclide, a general rule of thumb that is used is that a radionuclide's hazardous life is ten times its half-life. So the Pu239 in existence today will be hazardous for 240,000 years. In general, inhaled plutonium is far more hazardous than plutonium that is ingested. Tiny particles can lodge in the lung, where they can remain for a period of 500 days. Of material absorbed into the deep lung, approximately 15% goes to the lymph nodes and eventually to the bloodstream. If deposited in the bone through the bloodstream, it can remain there for up to 200 years. Attached are two tables from the resulting study that describe numerous accidental releases of plutonium and other dangerous radionuclides by the Lab, and provide a list of management and regulatory errors that could have led to releases. (Please note that these tables are taken directly from the report that I prepared.) Incidents that post-date the study are not included in the tables.

The pattern of management failures to contain nuclear materials and prevent exposure to workers and the public is an analog of predictable patterns and failures for the BSL-3 facility. I have concluded that the accidental releases of radioactive materials and the documented incidents that could have led to releases demonstrate a pattern of management failure at LLNL. For example, an internal investigation report identifies that the 1997 criticality events were "symptomatic of ongoing poor work processes and practices in B-332, rather than an example of planned willful noncompliance with safety measures." It concluded that the repeated violations were in the areas of "personnel training and qualification, procedure compliance, and quality improvement." In an earlier letter from the Defense Nuclear Facilities Safety Board, the Chairman of the Board stated that the number of criticality infractions "raise questions as to whether DOE-OAK is staffed with the technical capabilities necessary to provide guidance" and "neither DOE-OAK nor LLNL management appears to recognize or fully appreciate all of the problems of hazardous work control".

Given the poor management of nuclear materials and the chemical contamination found at the LLNL managed sites, I conclude that LLNL's management practices must be assessed before undertaking a new mission that involves the storage, use, and disposal of highly dangerous biological agents. I believe that this is a critical factor in making an informed decision. A proposal to allow the use of potentially deadly bio-agents at a facility with a history of environmental releases requires a comprehensive analysis of all risk factors that could influence such a decision.

Based on my professional judgment, I conclude DOE's Revised EA is flawed because it did not evaluate all critical factors in the operation of this proposed facility.

Sincerely,

Peter M. Strauss
President
PM Strauss & Associates

Table 2

Reported Incidents and Vulnerabilities at LLNL That Could Have Led to Releases

3/11/79 - LLNL mistakenly sends 21 "sacks" of Am containing 43 microCi (μCi) to Alameda County Landfill. Material is recovered.

4/16/79 - During inspection of B-332 HEPA filters, six failed test, six others too active (i.e., contaminated) to conduct test. All twelve filters replaced.

1/10/80 - -Safety report notes the risk due to fire. It posits scenario where fire in glovebox breaches glovebox, fuel of some sort is left around, fire suppression doesn't work, and there is 4.5 kg of plutonium in glovebox. 0.05% becomes suspended (2.25 grams) goes through one filter (99.97% removal) so 675 micrograms are released. Off-site person would inhale 1×10^{-4} or 1×10^{-5} microcuries or about 5 millirem. This would increase cancer risk by 1×10^{-7} .

1/24/80 - 1/26/80 - Earthquakes on Greenville-Diablo fault (5.9 and 6.3 Richter scale) left small damage to walls of increment 1. No releases occurred. Some walls were seismically strengthened.

8/29/80 - Failure of downdraft HEPA filter. Recommendation to re-evaluate changeout schedule "because of significant amount of plutonium in this system" (i.e., filters and duct system).

2/6/81 - Report that stack-sampling system is inadequate, there are inadequate seismic tiedowns, and HEPA filters get plugged with dust.

9/11/81 - Memo states that there are many old filters (10-15 years old) in use at LLNL, noting that tests don't test age related stress/material factors. Report also notes that "Bldg. 332 appears to be one of the only facilities in the world where factors such as dust loading and contamination levels do not necessitate a relatively frequent filter changeout schedule." Attached memo of 1/15/81 states "the system is out of balance", that in August of 1980 staff were informed of the need to change downdraft filters as soon as possible, but this was not done. The report also indicated that one of the rooms "has a significant problem due to low flow", that square hoods "for the most part, have unacceptable flows", and "stack sampling systems on all exhaust points of the building should be reviewed on an annual basis".

4/30/83 - Report that glovebox HEPA filters have leaking housing.

6/1/83 - Report found small plutonium particles in the gloveboxes and the ventilation system that could be dispersed if the filters were not in good shape.

6/30/88 - Power outage in B-332 resulting from LLNL electric system failure. Emergency diesel generator (EDG) maintained power. No releases or corrective actions.

7/29/88 - EIS accident analysis reports a 4.5-kg max-credible release. States that it would have far less off-site effects than release at B-251.

10/3/89 - LLNL employee files a complaint that glovebox in B-332 is too old to safely conduct experiments. While LLNL investigative team establishes that there is no immediate threat to health, it recommends decommissioning the glovebox, and immediately stop using it. The evaluation also states that "[I]n the past, local contamination has been found in the area."

3/9/90 - Report describes how older filters will be destroyed by fire protection (i.e., water spray). At Rocky Flats, a 1980 plutonium incinerator fire caused adhesion on the HEPA filters to degrade and steel supports on frames to warp, and water blew them out of housings. Filter bank housing was in poor shape and did not meet criteria for nuclear grade. There were also possible leaks from gaskets, filters, ball valves, test ports, boot seals, and caulking.

3/27/90 - An inspection report discloses that 17 of 22 HEPA filters in one batch, and 4 of 26 in another were discovered torn or cracked.

6/6/90 - Internal memo, referring to HEPA filters, states that "I hope it doesn't take a release like we had in late 1979 - early 1980 to spring money necessary to resolve the problems."

7/20/91 - Emergency diesel generator (EDG) failure. No releases occurred.

1/27/92 - Report that HEPA filters are 100% efficient for particles > 0.1 to 0.3 microns. Only 1 % of plutonium particles are less than that.

1/30/92 - HEPA filter degradation on glovebox exhaust discovered during annual surveillance testing. Filters tested at 99.90 and 99.95% removal instead of 99.97 %. Filters were replaced.

7/15/92 - EDG test failure. Same EDG as 7/20/91.

9/28/92 - Accidental puncturing in B-332 fire water supply line. Fire department corrected this right after it occurred.

10/17/92 - Inspection showed degradation of room exhaust air ducts and in glove box ducts. No radioactive contamination. Repaired cracked ducts and sections were seismically secured. After further inspection, evidence of corrosion was found in another exhaust duct. Cracking was due to intergranular stress corrosion cracking in weld heat affected areas.

10/28/92 - Failure of glovebox exhaust pressure line. Due to material degradation.

12/1/92 Report states that monitoring gauges not calibrated.

12/13/93 - Failure of EDG during monthly maintenance test. Repairs were made.

5/94 - Defense System/Nuclear Design Directorate requires that all glove boxes be triply filtered. Requires that they should be able to be exposed to 180 degrees F, and have 99.97% removal of particles over 3 microns. Filters should be marked with the flow rate, flow direction, and serial number.

6/17/94 - Worker in storage vault observed two bulged cans containing plutonium ash accumulated from incineration activities. The double can was bulging at both ends. All cans in the vault are bagged.

6/21/94 - Radiographs indicate that several inner cans are bulging.

6/21/94 - Failure of glovebox exhaust fan is discovered.

7/94 - A DOE inspection team discovered another 7 bulging cans of plutonium oxide. This could be the result of hydrogen pressure from moisture in the can, or the breakdown of the plastic bags that are sealed in the cans. X-ray analysis determined that the inner cans had peeled back in two containers.

7/29/94 - Report that HEPA filters for B-332 were unqualified. "This public disclosure [of Westinghouse employee] has increased the urgency to resolve the problem before others discover the problem and force the laboratory to shut down affected operations of B-332." States that specifications for the HEPA filters were prepared in 1962 and that no certification facility could test the equipment because of shape and size.

8/94 - A second DOE inspection revealed another bloated can, and an analysis of gasses from the cans. A mixture of hydrogen, oxygen, and hydrocarbons was found. DOE re-classified the risk of explosion from low to high.

8/4/94 - Plutonium Working Group Assessment Team Report identifies the following vulnerabilities at LLNL. At B-332, vulnerabilities are to workers who receive increased exposure due to storage of excess material, obsolete packages and the lack of specific knowledge of packaging, and inadequate design basis for internal structures during an earthquake. For B-251, vulnerability results from insufficient information to characterize quantities of materials. For B-231, vulnerability includes excess sources leading to increased exposure.

9/30/94 - Plutonium Working Group identifies LLNL B-332 as one of the 14 most vulnerable sites in the DOE complex. Identifies 282 plutonium containers that contain "uncharacterized materials and unknown package configurations". 108 packages contain plutonium ash that is generating hydrogen gas. Eight cans bulged due to pressurization, creating a hazard for workers. Also identifies the lack of supports for the fire suppression system, which could fail in an earthquake. Some interior walls were not made of reinforced masonry so that they could collapse in an earthquake and damage gloveboxes and plutonium contents.

12/12/94 - Vulnerability Assessment indicates that sprinkler system in Increment 1 and HEPA filters housed in Plenum Building could fail under a design basis earthquake. LLNL reinforced piping system.

2/16/95 - Presentation to LLNL states that HEPA filters can fail when exposed to high temperature, high air flows, shock waves, moisture, and heavy particle deposits.

2/16/95 - Report on HEPA filters states that filters may fail under accident conditions; there are many old filters with no guidance for disposal; filters are not qualified for nuclear applications; DOE has standards developed by the army; LLNL has functioning filters with 32 years of service. They have failed at DOE facilities and had 0% efficiency in accidents and off-normal conditions.

4/95 - The Defense Nuclear Facilities Safety Board requires shutdown of plutonium Building after important safety measures were missed in April. Shutdown lasts until October, and ventilation system and emergency generator were added.

5/23/95 - Failure of EDG.

1996 - B-332 HEPA Test database identifies inventory of 277 HEPA filters. Of these, 17 reported removed, and 28 inactive. Of the 232 remaining filters, 48 were installed in 1975, 59 were installed before 1987 (20 years old), and only 31 were less than 5 years old.

1/24/96 - Glovebox pressure is lower than normal and required personnel to leave the area.

6/24/96 - HEPA filters in Increment 1 failed test.

7/18/96 - LLNL is required by DOE to repackage approximately 400 pounds of excess plutonium. New canisters will have to be certified for up to 50 years. LLNL plans to begin repackaging its 300 to 400 canisters in late 1997. New canisters will not have plastic liner. One stainless-steel can will be vacuum sealed, welded shut and placed inside another can, also vacuum sealed and welded shut.

8/23/96 - Potential overmass of dispersible plutonium mass limit.

9/9/96 - HEPA filter report states that abnormal conditions such as fire, high wind, earthquake "may affect the HEPA filters" HEPA filters over 15 years old routinely failed when exposed to over-pressure situations. "Within B-332 there are many filters older than 5 years which have been in service from greater than 10 years."

10/30/96 - Report states that QA tests show vendor testing not adequate, failure rates of 5-10 %. The report noted that accidents within the DOE complex have "challenged HEPA filters" (1957, 1969, 1980). For example, after 15-19 years, the filter strength was degraded by 50 %. DOE facilities have filters in service for 10-20 years; LLNL had filters in-service for as long as 31 years. Additionally, the report pointed out that filters degrade from radiation absorption and that the fiberglass medium and metal borders may be weakened due to water. Testing of the sprinkler system could cause the fiberglass to degrade and the filter boxes made of plywood to warp. Leak tests at the facilities are done to assure proper installation and age-related problems, but do not indicate filter efficiency. Leak tests are done to assure proper installation and age related problems. Not indicative of filter efficiency. Beginning in 1992, over 5% of filters were rejected by QA (through 95). The report also stated that "DOE facilities routinely handled the oxide form of fissionable materials such as plutonium in respirable size particles. Our facility ventilation ducts contain plutonium in significant quantities."

Between 5/20/97 and 7/15/97, a workstation violated criticality controls at least 12 times. In October 1997, criticality safety controls were violated 12 times during activities relating to materials storage vaults. During December another criticality control was violated during repackaging. In the course of investigating the cause of these violations, it was learned that 18 other infractions had been discovered. In general, operational procedures are designed to keep an activity sub-critical with an adequate margin of safety. In these cases, inadequate procedures and training were the major factors, as well as inadequate supervision. As a result of these safety

infractions, the DOE placed B-332 on standby in October 1997. It resumed operation in April 1998. The record of violations reveals systematic deficiencies in management and worker understanding and attitudes.

7/23/97 - Empty vials found to contain radioactive samples.

10/30/97 - Violation of criticality controls after two containers had been placed in storage locations with lower mass limits than in previous location.

12/97 - Violation of criticality controls while performing re-packaging at B-332.

5/21/98 - Investigation Report identifies that the 1997 criticality events were "symptomatic of ongoing poor work processes and practices in B-332, rather than an example of planned willful noncompliance with safety measures." It concluded that the repeated violations were in the areas of "personnel training and qualification, procedure compliance, and quality improvement." In an earlier letter from the Defense Nuclear Facilities Safety Board, the Chairman stated that the number of criticality infractions "raise questions as to whether DOE-OAK is staffed with the technical capabilities necessary to provide guidance" and "neither DOE-OAK nor LLNL management appears to recognize or fully appreciate all of the problems of hazardous work control".

8/7/98 - LLNL report to DOE confirms safety violation (administrative, personnel) occurred. Mass quantity of plutonium in glovebox is over limit (220 grams). 268 grams were stored in one glovebox.

3/12/99 - Memo from Argonne National Laboratory indicates that B-332 HEPA filters are "not" immune to the type of events that occurred at Rocky Flats. Recommends replacing all HEPA filters at B-332.

5/99 - LLNL In-place leak test for HEPA filters indicates that there are no regulations regarding service life of HEPA filters. A standard was established that replaces any filter that becomes wet; replace any filter that could be exposed to water five years from date of manufacture; and replace all filters within 10 years.

7/15/99 - Glovebox fire damper failed during routine maintenance.

7/20/99 - Combustible loading exceeded in laboratory room.

2/00 - LLNL received a bomb threat via phone against the plutonium processing facility at LLNL. The building was not evacuated per procedure. None of the security officers had either the training or the equipment to deal with a bomb threat.

1/02 - There is an allegation by security officers at LLNL that security officers are not trained for radiological emergencies and that they are ill-equipped and do not receive the same type of external radiation monitoring as do other LLNL employees. The security officers spent at least 20% (the minimum percentage to warrant monitoring of radiation exposure) of their time in the Radioactive Materials Areas (RMA), yet are not provided high quality dosimeters and not all are provided respiratory protection.

Table 1
Accidental Releases at LLNL

11/8/60 - A curium (Cm242) fire occurred in B-251, releasing several Curies. Some Pu238 may have been present.

1953 - 1962 - Radioactive liquid wastes, including plutonium, were disposed of in unlined pits in the Taxi Strip area (presently where Trailer 5475 is located).

1962 - 1976 - Radioactive liquid wastes, including plutonium, were treated in solar evaporation trays at the south end of the Taxi Strip, near B-531 and Trailer 5475.

3/26/63 - An explosion and fire involving enriched uranium resulted from a criticality accident at B-261. The explosion was equivalent to approximately 5.19 pounds of TNT. About 15 kg of uranium burned, and another 10 kg melted and was distributed on the floor. 2 No person received more than 120 mrem.3 Release of radioactivity was detected in two buildings that are 350 meters away. Approximately 900 Ci were released.

9/13/65 - A plutonium fire in B-332 started, involving about 100 grams of wet plutonium in the form of thin plating. A plastic bag containing the plutonium was left over the weekend and it ignited when the bag was handled on Monday. Alpha contamination in room was >106 dpm. Contamination in corridor was 10,000 dpm. It reportedly all contained within building. It took 2 1/2 months to cleanup.

4/20/67 - A spill of radioactive liquid containing plutonium outside B-332 in an outside storage area, resulting in levels between 10,000 and 160,000 dpm. A leaking transfer container caused the spill. It began to rain soon afterwards and there were problems containing the plutonium. After the incident, LLNL changed procedures so that TRU waste no longer stored outside B-332.

5/25/67 - 6/15/67 - Release of 32 mCi to sewer. In late May, monitors detected a permissible release to the sewer although it was 30 to 100 times normal. By early-June, LLNL increased monitoring frequency. On June 6, levels were approximately 1 to 2 thousand times normal. 7 It was estimated that sludge would contain 2-3 pCi/g of plutonium. In 1975, tests indicated that sludge contained 2.8 pCi/g of Pu239.

1973 - Unknown quantity of plutonium may have been released to soil during a 1973 transfer of dry materials from "solar evaporator". LLNL modified evaporation method to reduce wind dispersal.

1974 - LLNL samples around solar evaporation trays confirms that there were releases to the environment.

6/16/75 - An exothermic reaction sprayed contaminated liquids throughout a room in B-332. It was caused by improper addition of reactive chemicals. Decontamination took 3 weeks.⁸

4/8/80 - Burst glove box released 3 gm (0.26 Ci) outside B-332 because of "improperly installed HEPA filters." 9 Operations at B-332 stopped until similar glove boxes are inspected. Release not detected in offsite air monitors.

4/16/80 - Flash fire in glove box caused pressure to blow the window out. Plutonium escaped to room in B-332. Release was not detected in stack monitors. Caused by leaving ethanol in glovebox, which when heated volatilized in the box and finally exploded.¹⁰

9/82 - 1983 - Pits at Taxi strip are excavated. 1500 cubic yards of radioactively contaminated soil is removed and disposed at Beatty Nevada. During excavation, rainfall was abnormally high, suggesting that some contaminated soil particles may have been carried away or dissolved and mixed with groundwater.

3/83 - Routine handling of drums at B-612 containing curium, americium, and plutonium spilled on to ground and contaminated at least one worker. Event was discovered day after it occurred because contaminated employee wore the same clothes to work that he had worn previous day. This suggests that some contamination was tracked off site by at least one employee (three were working on the drums when the spill occurred). Event involved a sequence of procedural and human errors. First, in 1980, the drums were mislabeled, which consequently resulted in their being placed outdoors for three years. Second, in 1983 workers mishandled the drums, which was a violation of safety procedures (i.e., the appearance of leakage did not cause employees to monitor what was leaking). Third, there was a violation of procedures preventing egress from the waste storage area.

2/86 - Two workers received internal dose of 1-rem each because of breach in glovebox. This dose was the "allowable" dose over a 50-year period. No respirators were worn. Caused by degradation of gloves.

5/87 - LLNL releases approximately 1 mCi of Pu239 to sanitary sewer.

1990 - DOE inspection team states that LLNL had not investigated or evaluated the cause of measurable off-site plutonium contamination as determined by high-volume air particulate samples collected during 1988. Since there was no detectable plutonium in the stack monitors, the source was unknown, but could have been due to wind-blown soil contamination originating from on-site source area.

6/28/91 - X-ray exposure to worker's hand when worker intentionally bypassed safety interlocks in order to x-ray plutonium part. Exposure of 233 mrem.

7/9/91 - Monitoring indicates statistically significant increase in plutonium discharge too sanitary sewer. Average went from 0.21 Ci per month during first 7 months of 1990 to 1.25 Ci per month from 8/90 through 5/91. Later report indicates that this increase was probably due to sewer cleaning activities.

10/24/91 - Double bag of plutonium powder tore and was spread on floor. Worker received small amount in nasal passage.

10/5/92 - While working in glovebox at B-251, worker punctures glove and thumb with curium-244 contaminated material. Receives estimated dose of no greater than 10 rem.

10/29/92 - Two workers contaminated after can of plutonium oxide is placed in bag. No inhalation occurred.

In 1994, EPA discovers plutonium in three city parks that are above background. The highest levels occur in Big Trees Park, which is adjacent to Arroyo Seco Elementary School. This park is approximately one-half mile from the LLNL boundary.

2/7/96 - DOE reported that LLNL couldn't account for 5.5 kilograms (12 pounds) of plutonium in its stockpile. This could be attributed to releases to the environment, quantities that remain bound in the ventilation and sewer systems, theft, or incorrect weighing of the plutonium. There has been no further explanation.

8/5/96 - Several basement ducts reported contaminated.

12/26/96 - Worker's hand is contaminated with radioactive material.

2/3/97 - Worker's hand is punctured during glovebox operation.

2/7/97 - Complete HEPA filter failure at B-321, releasing depleted uranium.

7/2/97 - Personnel contaminated after shredding a HEPA filter at B-513. The HEPA filter was contaminated with over 500 times the limit of curium. Five workers were exposed to doses 3 to 5 times regulatory limits. The DOE issued a Notice of Violation to LLNL, describing "numerous failures by your organization to implement established radiological protection requirements and quality controls necessary to protect workers. These failures occurred multiple times..."

12/11/97 - Some HEPA filters show leak rate of 0.04% as opposed to the standard of 0.03%. Filter gaskets could also be source of leaks.

-----Original Message-----

From: Janis Turner [<mailto:jktturner2001@yahoo.com>]

Sent: Wednesday, May 09, 2007 11:38 PM

To: Brinker, Samuel

Subject: BSL-3 Lab at Livermore

I oppose the bio- warfare research facility(BLS-3)at Lawrence Livermore main site because Livermore Lab sits within a 50 mile radius of 7 million people. This highly populated area is not an appropriate place to conduct experiments with some of the deadliest agents known to humans, especially since Livermore Lab is located near active earthquake faults; BSL-3 lab should not be operated in a sismically active area!

Janis Turner

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10.302.01

May 11, 2007

VIA FACSIMILE, E-MAIL AND U.S. MAIL

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Re: Comments on Draft Revised Environmental Assessment for the Proposed
Construction and Operation of a Biosafety Level 3 Facility at Lawrence
Livermore National Laboratory

Dear Mr. Brinker:

On behalf of Tri-Valley Communities Against a Radioactive Environment ("Tri-Valley CAREs"), and other concerned citizens, we submit the following comments on the Draft Revised Environmental Assessment for the Proposed Construction and Operation of a Biosafety Level 3 Facility at Lawrence Livermore National Laboratory ("Revised EA"). The Revised EA contains major deficiencies, detailed below, that unless corrected, preclude its approval.

I. NEPA REQUIRES FULL AND FAIR ASSESSMENT OF ENVIRONMENTAL RISKS AND IMPACTS.

The National Environmental Policy Act ("NEPA"), 42 U.S.C. § 4321-4370f, establishes a "national policy [to] encourage productive and enjoyable harmony between man and his environment." *Department of Transportation v. Public Citizen*, 541 U.S. 752, 756 (2004) ("Public Citizen") (quoting 42 U.S.C. § 4321). Before taking actions that may have a significant impact on the human environment, NEPA requires federal agencies to prepare environmental impact statements ("EISs") that carefully consider the environmental impacts of proposed decisions and alternatives for reducing or avoiding those impacts. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989); 10 C.F.R. § 51.71(d). EISs must consider environmental impacts that are "reasonably foreseeable" and have "catastrophic consequences, even if their probability of occurrence is low." 40 C.F.R. § 1502.22(b)(1). Moreover, a "reasonably close causal connection" must exist between the proposed agency action and the environmental effects of concern. *Public Citizen*, 541 U.S. at 767 (quoting *Metropolitan Edison v. People Against Nuclear Energy*, 460 U.S. 766, 774 (1983)). That the likelihood of an impact may not be easily quantifiable is not an excuse for failing to address it in an EIS. The "mere assertion of unquantifiability" does not immunize an agency from consideration of environmental impacts under NEPA. *Limerick Ecology Action, Inc. v. NRC*, 869 F.2d 719, 744 n. 31 (3d Cir. 1989).

Where it is not clear whether the impacts of a proposed action are significant, the agency may provide a more limited document, an environmental assessment ("EA"), that "[b]riefly

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provide[s] sufficient evidence and analysis for determining whether to prepare an [EIS].” *Public Citizen*, 541 U.S. at 757 (quoting 40 C.F.R. § 1508.9(a)). If, after preparing an EA, the agency determines that an EIS is not required, it must issue a “finding of no significant impact” which states the reasons for the determination. *Id.* (quoting 40 C.F.R. §§ 1501.4(e), 1508.13).

In *San Luis Obispo Mothers for Peace v. Nuclear Regulatory Commission*, 449 F.3d 1016, 1035 (9th Cir. 2006) (“*Mothers for Peace*”), the Ninth Circuit Court of Appeals held that an Environmental Assessment that does not consider the possibility of a terrorist attack is inadequate. After considering the EA prepared for the Biosafety Level 3 (“BSL-3”) Facility at Lawrence Livermore National Laboratory (“LLNL”) in 2002, on October 16, 2006 the Ninth Circuit ruled the EA deficient. On October 30, 2006, the District Court remanded the matter to the Department of Energy (“DOE”) to consider whether the threat of terrorist activity necessitates the preparation of an EIS. As shown below, DOE’s Revised EA fails to provide the information NEPA requires.

II. THE REVISED EA DOES NOT ADEQUATELY ASSESS THE RISKS AND IMPACTS OF EARTHQUAKES AND TERRORISM.

Applying the foregoing legal standard for preparation of an EIS and the Ninth Circuit’s ruling, it is clear the Revised EA does not meet the standard, and that the serious risks of harm posed by the BSL-3 project require preparation of an EIS. We discuss below the primary defects in the EA.

A. The EA’s Assessment of the Risk and Impact of Seismic Failure is Deficient

The Revised EA does not address the deficiencies in its seismic analysis previously raised by Tri-Valley CAREs. Instead, it relies solely on DOE’s 2005 Sitewide Environmental Impact Statement (“SWEIS”) to quantify the seismic hazard at the Livermore site. Revised EA, p. 38. The 2005 SWEIS, however, understates this site’s seismic risk. It claims that “the maximum horizontal peak ground accelerations at the Livermore Site for return periods of 500 and 1,000 years [are] 0.38 g, and 0.65 g, respectively.” *Id.* The analysis contained in Appendix H to the SWEIS claims that the probability of exceeding an acceleration of 1.0 g at the LLNL site is only about one in 10,000 years (SWEIS Appendix H, Figure H-1). Both of these claims are mistaken. They ignore seismic maps developed by the U.S. Geological Survey (“U.S.G.S.”) in 2003 that show a substantial likelihood of higher accelerations in the Livermore area. More importantly, they ignore more recent strong motion data collected by the U.S.G.S. in 2004 confirming that accelerations in excess of 1.3 g are foreseeable at this site.

The Livermore area has experienced major structural damage from recent earthquake activity. *See* Testimony of Robert R. Curry, Ph.D., filed herewith at ¶¶ 7-9. In 1980, a magnitude 5.9 earthquake struck the Livermore area. *Id.* This earthquake injured 44 people and caused several million dollars in property damage at the Lawrence Livermore Laboratory. *Id.* Damage at the Livermore Laboratory included fallen ceiling tiles, fallen bricks from chimneys, broken gas and water lines, broken windows, and displacement of mobile structures – such as the proposed BSL-3 facility – from supporting foundations. *Id.* Pavement on an overpass over Interstate 580 north of Livermore dropped one foot. *Id.* Surface rupture along the Greenville Fault was observed for a distance of 6 kilometers, or about 4 miles. *Id.*

A similar earthquake of magnitude 6.0 occurred on September 28, 2004 at 10:15 AM near Parkfield, California on the San Andreas Fault. Seismic energy from this earthquake was

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recorded by strong-motion seismic array instruments placed by the U.S. Geological Survey and California Geological Survey. The new strong-motion U.S. Geological Survey data generated as a result of this earthquake indicate that a magnitude 6.0 event like this one can generate ground accelerations of up to 1.31 g (131 percent of gravity) as much as 12 kilometers from the source fault. See Goel & Chadwell, Preliminary Report on September 28, 2004 Parkfield Earthquake, available at http://www.eeri.org/lfe/pdf/usa_parkfield_goel.pdf, last accessed May 10, 2007 (Attachment 1 to Curry Testimony). The proposed BSL-3 facility is within 1 kilometer of the mapped traces of both the Las Positas and Greenville faults. As attested in the accompanying Testimony of Robert R. Curry, Ph.D., the Revised EA fails to address this new data and ignores the clear potential for a catastrophic failure of the BSL-3's containment system due to foreseeable seismic activity.

Although the Revised EA acknowledges that “a large earthquake on the Greenville Fault is projected to produce the maximum ground-shaking intensities in the Livermore area with intensity ranging from strong (MM VII) to very violent (MM X)” (Revised EA, p. 38), it fails to translate these intensities into the risk of an actual loss of bioagent containment. Consequently, the public is kept in the dark regarding the risk that a big quake could unleash deadly bioagents in a major metropolitan area.

Worse, the EA relies on obsolete assumptions regarding maximum ground accelerations that are included in DOE's 2002 SWEIS. See, SWEIS, pp. 4.8-14 – 4.8-17. These assumptions are refuted by recent scientific data. As Professor Curry has attested, this site is subject to quakes that could trigger an acceleration in excess of 1.3 g, causing major structural damage. Curry Testimony at ¶ 6.

The EA thus understates the potential harm from a quake. It states that the maximum damage from a quake is not expected to pose a hazard. Revised EA, p. 51. Instead, it assumes – contrary to the recent history of major quake damage in Livermore – that only “minor cracking” in the walls and ceiling of the building might occur. *Id.* These assumptions are directly contradicted by the strong motion data from the 2004 Parkfield quake and the 1980 Livermore quake, as Professor Curry explains. Accordingly, the EA should be withdrawn and an EIS prepared in light of the far greater seismic hazards posed at the BSL-3 site than are acknowledged in this deficient EA.

B. The EA's Assessment of the Risk and Impact of a Terrorist Attack is Deficient

The Revised EA assumes that all potential breaches of containment will be countered by extraordinary coincidental circumstances that completely extinguish the threat to human health. Although the EA includes a new discussion about the threat of terrorist activity ostensibly in response to the Ninth Circuit Court of Appeal's ruling, it never actually considers the *impact* of uncontained pathogens on the 10,000 workers at the Lab, nor on the millions of residents in the surrounding communities. This is because this EA continues to rely on the same obsolete and inapplicable bounding scenario as the previous, deficient EA – *a scenario that assumes all pathogens released would die before harming anyone!* Revised EA, pp. 57–66.

The Revised EA corrects none of the flaws that were present in the original EA. Like its predecessor, it fails to realistically and quantitatively address the threat of terrorism as required by NEPA. The Revised EA makes several untenable assumptions that are crucial to its conclusion that the possibility of environmental impacts due to terrorist attack is not sufficiently

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high to warrant the preparation of an EIS. These assumptions, however, are not supported or justified by any apparent evidence, as we explain below.

1. ***The EA unreasonably assumes “[i]t is probable that the organic biological material [released] would be destroyed by any resulting fire” in a loss-of-containment attack. Revised EA, p. 59.***

Although the Revised EA now admits that a terrorist might cause deliberate damage to the facility “with the *intention* of releasing small tube-stored samples or working cultures of pathogenic agents,” it negates this acknowledgment by then assuming that a fire would break out (caused by a plane crash or explosive device) and destroy those pathogens. Revised EA, p. 59, emphasis added. This assumption ignores the fact that a terrorist intending to release and disperse pathogenic agents would strive *to preserve the released pathogens from incineration rather than destroy them in a fire*. DOE should therefore examine the risks posed by loss-of-containment attacks that are *not* accompanied by fire. Because such risks pose potentially catastrophic harm, they should be examined in an EIS.

2. ***The EA unreasonably assumes that a breach of containment “is likely to rupture containers of disinfectant.” Revised EA, p. 59.***

The Revised EA provides no support for its assumption that a *breach of containment “is likely to rupture containers of disinfectant.”* Revised EA, p. 59 (emphasis added). The EA claims without explanation that a “[b]reach of containment *in the absence of an explosion* is likely to rupture containers of disinfectant.” *Id.*, emphasis added. But the EA never explains how those containers will be ruptured in the *absence* of an explosion or other violent force. Contrary to this pivotal assumption, there is no reason to believe these containers would rupture and kill all the released bioagents. Even assuming contrary to common sense that some containers would rupture with or without an explosion, nowhere does the EA explain how the mere rupture of such containers would kill all bioagents that might be released, regardless of where, and under what wind, rain, and other environmental conditions, the bioagents were released.

3. ***The EA assumes that a breach of containment will expose pathogens to “environmental factors” that will kill airborne microbes. Revised EA, pp. 59-60.***

The Revised EA speculates that “environmental factors *could* kill many airborne microbes *in their vegetative state*.” Revised EA, p. 59, emphasis added. The Revised EA goes on to conclude that “[t]herefore, a terrorist act, such as a plane crash, would not be expected to result in a release of greater magnitude than from other catastrophic events already considered,” or from natural events such as an infected ewe giving birth to a lamb. *Id.* at 60. But the release of potentially millions of lethal doses of Anthrax or other deadly bioagents hardly compares in magnitude to the birth of a sick ewe. The EA’s attempt to trivialize the real threats to human health by comparing them to the rare, modest exposures that occasionally occur in the natural world hides the ball from the reader, frustrating NEPA’s objectives of full and fair disclosure of the actual risk of environmental harm.

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The EA provides no factual support for its extreme assumption that released microorganisms would be substantially reduced in number or lethality within minutes through the action of environmental factors. *Id.* The “comparison” that the EA presents between a “placenta from a ewe infected with *C. burnetii*” (which is presumably disposed of without becoming aerosolized, windborne or otherwise dispersed), and an *intentional* release of aerosolized organisms resulting from a terrorist act designed to cause maximal damage, masks rather than illuminates the magnitude of risk associated with a breach-of-containment attack, contrary to NEPA.

4. *The EA unreasonably assumes that diagnostic testing and medical treatment will be immediately available to those at risk. Revised EA, p. 60.*

The Revised EA assumes that individuals exposed to pathogens after a successful terrorist attack will be immediately identifiable and treatable for exposure to a known pathogen, within 24 hours and using available antibiotics. Revised EA, p. 60. The EA does not appear to consider the strong likelihood that a violent breach of containment will release multiple types of pathogens – since many different ones will be stored or in use – in unknown concentrations. The example provided by the EA assumes that exposed individuals will be immediately treated by a single vaccine and antibiotics known to be effective against a particular pathogen. *Id.* at 60. Since, as the EA later acknowledges, these pathogens “can be extremely difficult to detect and some may not cause illness immediately,” this assumption is plainly unreasonable. *Id.* at 62. The EA also fails to consider the possibility that genetically engineered organisms used at the BSL-3, against which available antibiotics (and the environmental factors discussed on p. 59 of the Revised EA, as well) may be *ineffective*, will be released into the environment after a catastrophic breach.

In sum, the EA can point to no evidence in support of its assumption that a breach of containment will be mitigated to insignificance by the action of fire, disinfectant, environmental factors, specific vaccination of exposed individuals, or specific antibiotic therapy of exposed individuals. Since these mitigating assumptions are therefore unsupported, it follows that the potential risks to human health and safety are at best unknown and at worst, severe. Accordingly, an EIS must be prepared to address them.

5. *The EA unreasonably assumes that naturally-occurring pathogens and cultured or aerosolized pathogens are qualitatively equivalent for the purposes of terrorism. Revised EA, pp. 60, 62-63.*

The Revised EA claims that the pathogens studied in a typical BSL-3 facility “are already obtainable from the environment,” such as the organisms responsible for Q fever, Valley fever, hantavirus, plague, rabbit fever and anthrax. Revised EA, pp. 62-63. It goes on to conclude that because “a knowledgeable terrorist” could conceivably collect these organisms from the environment, the pathogens “are *just* as accessible” to a terrorist as to a legitimate researcher, and therefore “the facility is not considered an attractive target for an outside terrorist.” *Id.* at 63, emphasis added.

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This conclusion is contrary to common sense in several respects. First, it ignores the obvious fact that *none* of these bioagents are readily available for collection in the environment. Specialized knowledge, skills and equipment are required to find, identify, collect, concentrate, culture, store and transport these bioagents. That, indeed, is the whole reason why the Department of Energy is spending millions of dollars to operate these facilities. It strains the bounds of credulity to assume that the extreme security measures described in detail on pages 60-62 of the Revised EA are necessary to protect the public from agents that are no more dangerous than those readily and “already obtainable from the environment.” *Id.* at 62.

Second, it ignores the obvious fact that a terrorist is far more likely to find attractive, and attack, a facility containing ready-made collected, isolated, cultured, concentrated and aerosolized pathogens than to attempt to find, collect and culture his own pathogens using more limited knowledge, technology and time. If terrorists had their own laboratories to stockpile these bioagents, then perhaps the EA would have a point. But there is no evidence that terrorists have such facilities.

Third, the EA ignores the risk posed by knowledgeable terrorists who may possess technical knowledge, but lack the technology required to aerosolize these pathogens or otherwise convert them into a highly-infectious form. These terrorists would obviously prefer to attack a facility that already has converted such bioagents to these dangerous forms.

6. *The EA unreasonably assumes that covertly stolen pathogenic material will not be in a readily-usable form.* Revised EA, pp. 63-64.

The Revised EA concludes that five crucial steps must be accomplished before a stolen bioagent could cause significant harm, and that this technological barrier mitigates the risk posed by theft. *Id.* at 63. This conclusion fails because its underlying assumptions are devoid of factual support. The EA assumes that the amount stolen will be small, and that the bioagent will not be in a readily-dispersible form. There is no support in the EA for the assumption that a failure of the BSL-3's security systems will permit the theft of a small amount of non-dispersible pathogen, but *not* the theft of a large amount of ready-to-use pathogen.

To the contrary, it is a well documented fact that “a dispersible form of *B. anthracis* was distributed through the U.S. Postal Service in 2001,” *infecting 22 people and killing 5*. *Id.* at 64. It is undisputed that “dramatic human health impacts and economic disruption can result following the release of pathogenic materials.” *Id.* Yet the EA refuses to quantify or analyze these impacts in any detail. *Id.* Although it outlines some measures designed to respond to another postal anthrax attack, and mentions the BioWatch program in major cities, it does not present any evidence that these measures will be effective against a range of bioterrorist attack strategies, much less that they will be employed and effective at this facility. *Id.* Consequently, there is no support for the EA's claim that stolen bioagents will not pose a serious risk to human health and safety.

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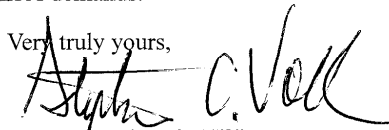
III. CONCLUSION

The Revised EA is deficient. It does not address and rectify the numerous deficiencies identified by Tri-Valley CAREs in response to the original, 2002 EA. These defects are catalogued in the attached declarations that Tri-Valley CAREs previously served on DOE during the judicial proceedings that resulted in the Ninth Circuit's Order. These errors and omissions cry out for correction. Further, as discussed above, the revised EA fails to adequately assess the risks and impacts of seismic failure and terrorist attack.

First, it fails to address new seismic information, including the 2003 U.S.G.S. seismic risk maps of the area, and the 2004 U.S.G.S. strong motion data for the Parkfield quake confirming that a magnitude 6.0 quake could cause accelerations of 1.3 g at this site. This omitted data and analysis is essential to informed public review. Seismic shaking of this magnitude could cause severe structural damage, destroying the BSL-3 facility's containment of bioagents. This potential for significant environmental harm requires preparation of an EIS.

Second, the EA fails to provide an adequate assessment of the risks and impacts of a terrorist attack. Its rosy predictions rest on unsubstantiated assumptions. Its conclusion that "the probability of a successful terrorist attack at the LLNL BSL-3 facility has been minimized to an extent commensurate with the potential threat" is not credible for several reasons. *Id.* at 65. It relies on the assumptions, devoid of support by any evidence, that "[a] direct assault on the facility is highly unlikely to succeed," "the risk of an outside terrorist acquiring pathogenic material is not significantly increased by having pathogenic material at LLNL," and "this scenario is not expected to occur at LLNL." *Id.* at 65-66. Because the Revised EA does not demonstrate that the risk of terrorist attack and the ensuing adverse environmental consequences are insignificant, an EIS should be prepared that evaluates and addresses this risk with the scientific accuracy and objectivity NEPA demands.

Very truly yours,



STEPHAN C. VOLKER
Attorney for Tri-Valley CAREs, et al.

SCV:taf

- Attachments:
1. Testimony of Robert Curry, Ph.D. Regarding the Revised LLNL BSL-3 EA's Deficient Seismic Analysis
 2. Declaration of Marylia Kelley in Support of Plaintiffs' Motion for Summary Judgement dated February 12, 2004

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3. Declaration of James J. Coghlan in Support of Plaintiffs' Motion for Summary Judgment dated February 12, 2004
4. Declaration of Robert R. Curry, Ph.D. in Support of Plaintiffs' Motion for Summary Judgment dated February 18, 2004
5. Declaration of Marion M. Fulk in Support of Plaintiffs' Motion for Summary Judgment dated February 10, 2004
6. Declaration of Matthew G. McKinzie, Ph.D. in Support of Plaintiffs' Motion for Summary Judgment dated February 11, 2004
7. Declaration of Peter Strauss in Support of Plaintiffs' Motion for Summary Judgment dated February 10, 2004
8. Declaration of William Scott Ritter, Jr. in Support of Plaintiffs' Motion for Summary Judgment dated February 12, 2004
9. Declaration of Dr. Mark Wheelis in Support of Plaintiffs' Motion for Summary Judgment dated February 12, 2004
8. Declaration of Mathew J. Zipoli in Support of Plaintiffs' Motion for Summary Judgment dated February 10, 2004
10. Declaration of Peter H. Stockton in Support of Plaintiffs' Motion for Summary Judgment dated February 10, 2004
11. Declaration of Edward Hammond in Support of Plaintiffs' Motion for Summary Judgment dated February 12, 2004
12. Declaration of Terrell Watt in Support of Plaintiffs' Motion for Summary Judgment dated February 12, 2004
13. Declaration of Dr. Susan Wright dated October 22, 2003
14. Declaration of Marylia Kelley in Support of Plaintiffs' Consolidated Opposition and Reply to Defendants' Cross Motion for Summary Judgment dated April 14, 2004
15. Declaration of Mathew J. Zipoli in Opposition to Defendants' Motion to Strike dated April 17, 2004

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16. Declaration of Edward Hammond in Opposition to Defendants' Motion to Strike dated April 20, 2004
17. Declaration of Marylia Kelley in Opposition to Defendants' Motion to Strike dated April 20, 2004
18. Declaration of Peter D.H. Stockton in Opposition to Defendants' Motion to Strike dated April 20, 2004
18. Declaration of Matthew G. McKinzie, Ph.D. in Opposition to Defendants' Motion to Strike dated April 20, 2004
19. Declaration of Marion M. Fulk in Opposition to Defendants' Motion to Strike dated April 19, 2004
20. Declaration of William Scott Ritter, Jr. in Opposition to Defendants' Motion to Strike dated April 20, 2004
21. Declaration of Susan Wright, Ph.D. in Opposition to Defendants' Motion to Strike dated April 20, 2004
22. Corrected Declaration of Mark Wheelis, Ph.D. in Opposition to Defendants' Motion to Strike dated April 21, 2004
23. Reply Declaration of Marion Fulk dated June 21, 2004
24. Reply Declaration of Matthew McKinzie, Ph.D. dated June 21, 2004
25. Reply Declaration of Mathew Zipoli dated June 14, 2004
26. Reply Declaration of Robert R. Curry, Ph.D. dated June 29, 2004
27. Declaration of Robert R. Curry, Ph.D. in Support of Appellants' Urgent Motion for Stay Pending Appeal

-----Original Message-----

From: Elizabeth West [<mailto:ewest@cybermesa.com>]

Sent: Thursday, May 10, 2007 9:57 PM

To: Brinker, Samuel

Subject: oppose BSL-3 at LLNL

I add my voice to those who have already spoken up about opposing the bio-warfare research facility at Lawrence Livermore National Labs. So many of us when we learn about this are somewhat confounded by the tragedy of this sort of work. Not good work in a tricky place. Don't, please.

Do you have any friends who you are talking with who oppose BSL-3 at LLNL? Would it be too much trouble to respond to me?

Thank you.

Elizabeth West

<ewest@cybermesa.com>

Dr. Mark Wheelis
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May 11, 2007

**Comment on the Revised Environmental Assessment for the BSL-3 Laboratory at
Lawrence Livermore National Lab**

Livermore Lab's proposed BSL-3 is not an ordinary BSL-3 for a number of reasons and the proliferation risks associated with this project must be carefully examined in a National Environmental Policy Act (NEPA) document. According to the revised EA, experiments performed in this laboratory would include aerosol transmission of extremely virulent and potentially lethal biological agents. The fact that this research will take place at Lawrence Livermore National Laboratory (LLNL), one of two primary nuclear weapons design and development laboratories in the country, heightens the proliferation risk significantly. Moreover, this proliferation risk goes hand in hand with a greater security risk and both increase the potential harm to the environment and the public.

Proliferation Risk

Because of the increased potential for environmental harm due to proliferation and security risks, I strongly recommend that the DOE prepare a Programmatic Environmental Impact Statement (PEIS) for all of the biodefense laboratories that are planned for DOE facilities (including the laboratory planned for Los Alamos National Lab) and a Nonproliferation Impact Review, in addition to a site-specific Environment Impact Statement (EIS) at LLNL and LANL.

If DOE conducts a programmatic review and more thorough site specific reviews, DOE will then be in a legally defensible position to defend its alleged purpose and need for DOE high-level biodefense programs. This will mean that proactive plans to protect the environment, public safety and national security will be developed in advance rather than in response to a problem, accident, crisis or catastrophe.

The Department of Energy (DOE) has set an important precedent by conducting a PEIS that includes a Nonproliferation Impact Review (NIR) for the Civilian Nuclear Energy Research and Development and Isotope Production Missions in the United States, Including the Role of the Fast Flux Test Facility in December 2000, and Stockpile Stewardship and Management in September 1996. Similarly, the Energy Department's CBNP, in my opinion, necessitates an equally comprehensive review.

I highly recommend that the Nonproliferation Impact Review be conducted as a part of the NEPA process that includes public participation in the scoping and a draft document circulated for public comment. This open process is critical because intent really is the biggest differentiating factor between defensive and offensive biological research. The participation of individual citizens who live near the proposed facility and have personal concerns such as health and property values, as well as representatives from professional and nonprofit groups who specialize in public health, emergency response, sewage treatment, landfills, water, environment, science, medicine and arms control may identify unforeseen problems, more cost-effective solutions and new ways to open up the process while maintaining necessary security. This scrutiny and public debate can only improve the quality of the decision and will likely result in more confidence in the final decision on the part of those most directly impacted.

The mere fact that the US is a signatory to the Biological Weapons Convention (BWC), and has agreed that this nation shall not perform the actual development and production of bioweapons does not provide adequate reassurance that the laboratory will not conduct offensive biological weapons work. **There is no clear dividing line between defensive and offensive research.** Further the treaty is flawed and unverifiable. When the parties attempted to include a verification regime in the treaty, U.S. Ambassador Donald Mahley withdrew U.S. support from the treaty. Please analyze the impact of the unpopular U.S. withdrawal from negotiations on a verification protocol and include a discussion of transparency measures to avoid the perception that the treaty is not being honored at this BSL-3.

There is a lot of suspicion of US intentions due to recent controversies as well. In fall 2001 it was revealed that the CIA built and tested a cluster munitions, modeled on a Soviet bioweapon, to spread biological agents. In addition, the investigation into the anthrax letter attacks revealed that the United States had an ongoing program to produce dried, weaponized anthrax spores for defensive testing. How much was made is unclear, but multiple production runs were apparently conducted over many years, and total production must have been in the 10s or 100s of grams of dried anthrax spores. Since a single gram of anthrax spores contains millions of lethal doses, the quantities produced seem unjustifiable for peaceful purposes under the bioweapons treaty. Whether excess spores were stockpiled or destroyed—or whether they can even be adequately accounted for—is unknown. Several other programs of dubious legality under the BWC were also revealed.

In view of the U.S. retreat from the BWC verification protocol negotiations, the resurgence in classified biodefense work, including at the DOE, and the activities mentioned above that appear to contravene the BWC, this rationale offered about why offensive weapons work would not be conducted at the laboratory needs more explanation. Again, these points raise issues that only a PEIS and Nonproliferation Impact Review would help to answer.

Further, a National Academy of Sciences panel noted that there are certain areas of research in the biological sciences that are so extraordinarily dangerous as to justify the establishment of a new mechanism for review and approval of experimentation and publication in those areas. "The potential threat from the misuse of current and future biological research is a challenge to which policymakers and the scientific community must respond," the Panel report stated. At this time, when this distinguished panel is proposing a process to balance rational security interests with the benefits of open scientific inquiry it is premature to be proposing biodefense research in such a provocative setting, as the DOE laboratories. At a minimum this question should be asked and answered in a PEIS and Nonproliferation Impact Review before actions are taken that could raise suspicions about the United States intent in locating biodefense facilities at the U.S. nuclear laboratories or, on the other hand, stifle the kind of open scientific inquiry integral to research.

This issue of openness and transparency is compounded at the DOE nuclear laboratories because of the secrecy and many levels of classification. A national complex of weapon design, development, testing and production facilities have a different emphasis and parameters than those of civilian or academic institutions when it comes to secrecy. The variation between the level of openness, transparency and public accountability possible for the DOE nuclear complex compared to an academic or public health institution has not been assessed. This is another reason why an adequate review process and Nonproliferation Impact Review is necessary.

The U.S. Nuclear Posture Review (NPR) submitted to Congress on January 8, 2002 caused a shift in U.S. nuclear weapons policy from a policy moored in a defensive posture to one that incorporates an offensive planning basis. The administration's new policies abandon the concept that nuclear weapons are instruments of last resort. Instead, they integrate plans for the use of nuclear weapons with conventional weapons, thereby opening the way for the United States to use nuclear weapons for a variety of purposes against any enemy. The NPR gives a number of specific circumstances in which the U.S. might use nuclear weapons. These circumstances all appear to sanction the use of nuclear weapons by the U.S. in situations that do not involve prior use of nuclear weapons by an enemy."

This shift in U.S. nuclear policy towards pre-emption versus deterrence and the offensive work being conducted by Lawrence Livermore and Los Alamos nuclear weapons laboratories to upgrade current nuclear weapons to enhance the earth penetrating capability makes DOE assertions about the purely defensive nature of its biodefense work suspect. The offensive nuclear design work at the weapons laboratories makes this location for biodefense work provocative and creates a greater proliferation risk.

Security Risk

The co-location of biological warfare agent facilities at nuclear weapons design and development laboratories, already on the FBI list of terrorist targets, make them even

more attractive targets. The threat of theft or sabotage either on site or in route to the facility is now magnified. Biological agents, unlike fissile materials and nuclear weapons, are more easily concealed and take fewer resources to produce. If these biowarfare agent facilities are established more people will have access to these agents and skills in their production and development.

The proposed DOE high-level Biosafety level-3 facilities are by definition permitted to aerosolize biological warfare agents, such as live anthrax. A major accident at one of these facilities could affect thousands of people. A recent test by Alameda County public health officials simulating two to three ounces of well dispersed, weapons-grade anthrax left 9000 people dead, in spite of their 300-page bioterrorism plan.

Work on a wide range of possible biological warfare agents to prepare for possible biological attacks, rapid advances in genetics, and genetic engineering practices at the DOE facilities, will likely result in the production of novel biological agents to which we have no experience controlling. The impacts of the release of genetically modified biowarfare agents due to leaks, spills, accidents remains highly uncertain.

The risk of the development of offensive bioagents and technologies in order to test defensive measures could result in theft of dangerous materials and technologies. Furthermore, the secrecy required by such a program, particularly those located at DOE weapons laboratories is antithetical to the transparency on which long-term bioweapons control must be founded. A world in which a leading nation is perceived to be secretly exploring the offensive military applications of biotech would be ripe for proliferation. If a country doesn't know its enemy's offensive capabilities, military strategists must assume the worst—that the enemy possesses or is developing bioweapons. This will provoke the development of bioweapons for a retaliatory or deterrent capability. And once bioweapons are established in military arsenals and in planning, past experience demonstrates that they become legitimate for military use.

With the proposed expansion of high level biodefense facilities into the Department of Energy without public hearings and a thorough review process we can not be sure that the DOE is prepared to handle these new high level biodefense responsibilities. Without this preparatory work and planning, will the integration of roles and coordination between agencies be clear? Will there be an increased risk of environmental releases, worker exposure, illness and even death, inadequate bioagent accounting, packaging, storage, transportation, handling and emergency response?

In the absence of adequate review, analysis and public scrutiny normally afforded such a potentially harmful enterprise, there is a more likely probability of frequent, complex, systemic problems and catastrophic accidents. Public hearings, a PEIS that includes a Nonproliferation Impact Review and a site specific EIS at LLNL and LANL must determine the full scope of the DOE biological defense program. These reviews must develop, with maximum public input, a clear philosophy by which to guide these programs; establish effective ongoing oversight mechanisms; and promote as much transparency in biodefense as possible.

Sincerely,

Dr. Mark Wheelis